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PRICE LEVEL ADJUSTMENTS:

A CASE STUDY

BY

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A THESIS

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The undersigned certify that they have read,
and recommened to the Faculty of Graduate Studies for
acceptance, a thesis entitled PRICE LEVEL ADJUSTMENTS:
A CASE STUDY submitted by Howard M. Armitage in partial
fulfilment of the requirements for the degree of Master
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ABSTRACT

The combination of inflation and the demands on corporate income by government, stockholders and labour have given rise to considerable dissatisfaction with the traditional historical cost conventions. Two alternatives which have received fairly wide investigation and support are (1) the presentation of supplementary statements in which historical costs are adjusted for changes in the purchasing power of the dollar (2) the replacement of historical cost with current cost. This thesis examines the effects of these different valuation techniques on the reported statements of a steel firm and investigates the attitudes of management toward these changes.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

INTRODUCTION

As a result of inflation following the second World War and late 1960's, the differences between the monetary and the real results of business operations have become so apparent that a widespread interest in the problem of price levels has developed in North America.¹

There is virtually unanimous agreement on one point; namely that during periods of marked price level change the customary financial statements lose some of their significance which they have during periods of monetary stability. It is true, of course, that even during a long period of general price stability in the economy, differences between costs and values would develop and that conventional statements might not satisfy all needs for economic information. In such a period, however, a firm which reported a profit would as a rule be better off at the end of the year than it was at the beginning and an investor who received a dividend could be reasonably certain that it was actually a distribution of income and not a repayment of capital. The situation during periods of inflation is quite different. It is then entirely feasible for a company to report profits even though they are really worse off at the end of the accounting period than they were at the beginning and for investors to receive dividends which are

¹Other countries, for example, South America, have long had an interest in price level accounting.

supposed to be from current income but which actually are, in part at least, a return of invested capital.

GENERAL AND SPECIFIC PRICE LEVEL CHANGES

At present the debate on price levels is largely polarized around the two main types of price changes: a movement in the general price level and a movement in individual prices.

A general price level change indicates on the average the trend of prices of all final goods and services in the economy. More specifically "A general price level change is a shifting in the economy-wise exchange value of the monetary unit... it mirrors the change in the purchasing power of the monetary unit as regards all goods and services that might be bought."² The effects of general price level changes are accounted for by retaining the historical cost approach and following standard practice in accounting for invested costs, but expressing, restating or measuring these costs in a constant value unit which is equal in purchasing power to the dollar of a selected date or period, which is called the base date. The essential characteristic of this method is the application of a general index of prices such as the Gross National Expenditure Implicit Price Deflator Index or the Consumer Price Index. The proponents of this view operate on the premise that one of the defects in conventional accounting is the fluctuation of the dollar and that the use of a unit of measure with the same amount of purchasing power will correct this. This is the mode of proceeding with the problem that is visualized, for example, by

² S. A. Zelff, "Replacements Costs: Member of the Family, Welcome Guest or Intruder?", The Accounting Review, XXXVII (October 1962) p. 612.

the American Institute of Certified Public Accountants' Accounting Research Study No. 6.³

Those who favour specific price level adjustments advocate abandoning "the generally accepted accounting practice of using historical cost for asset and expense accounts and adopting instead the concept of accounting for the movement in individual prices."⁴ These changes can be reflected by current replacement costs or the use of specific indices which illustrate the movement in the prices of specific items such as inventories and fixed assets. This viewpoint finds strong support among accounting theorists.⁵

There is also a third belief advocated principally by writers such as Edwards and Bell⁶ who do not believe these two viewpoints to be mutually exclusive and recommend adjustments for both general and specific price variations.

OBJECTIVES

The objectives of this price level project are:

- (1) A brief review of the controversy surrounding the two basic methods of accounting for price level changes.

³Staff of the Accounting Research Division, "Reporting the Effects of Price-Level Changes," Accounting Research Study No. 6, (New York: American Institute of Certified Public Accountants, 1963).

⁴Ralph C. Jones, Price Level Changes and Financial Statements: Case Studies of Four Companies, Columbus, Ohio: American Accounting Association, 1955.

⁵See for example, R. S. Gynther, Accounting for Price Level Changes - Theory and Procedures, London: Permagon Press Ltd., 1966.

⁶E. O. Edwards and P. W. Bell, The Theory and Measurement of Business Income, (Berkeley and Los Angeles, California: University of California Press, 1961).

- (2) To measure the effect of inflation on a small company in the Edmonton area by comparing conventional statements expressed in historical dollars to supplementary statements expressed in uniform dollars as measured by (a) a general price index and (b) specific indices restated by a general price index.
- (3) To investigate the attitudes of management toward preparing adjusted statements.
- (4) To examine the implications of price changes on the firm under study as well as on business organizations in general.

SCOPE AND LIMITATIONS

The main emphasis of this study is to reveal the effects which the price level changes of the past several years have had on the financial position of a particular business firm, The Great West Steel Company, in the Edmonton area. In adjusting conventional statements the study accepts the available Dominion Bureau of Statistics Index number.⁷ While the theoretical issues of why price level adjustments are necessary and the proposals of various writers are discussed, the study is not concerned with social issues or government attitudes toward the subject.

⁷For a complete discussion on reliability and construction of various price indices see Staff of the Accounting Research Division, "Reporting the Effects of Price-Level Changes," Accounting Research Study No. 6, (New York: American Institute of Certified Public Accountants, 1963).

ORGANIZATION

Chapter II illustrates the magnitude of price level changes in Canada. Some of the more obvious effects of not accounting for these changes are discussed. The position that the professional bodies have taken with respect to these issues is also examined. Chapter III discusses the theoretical issues involved in the two main price level adjustment techniques. Chapter IV illustrates price level adjustments to the conventional statements of The Great West Steel Company. The attitudes of firm's management toward accounting for price level changes, as well as some of the managerial implications of these changes to business in general are examined in Chapter V. Chapter VI is a summary.

CHAPTER II

EFFECTS OF NOT ACCOUNTING FOR PRICE LEVEL CHANGES

INTRODUCTION

One of the dominating criticisms of contemporary financial statements is "the failure of the legislature and the accounting profession as a whole to cope with or even recognize in practice, the difficulties that arise from inflation of the currency."¹ This chapter examines the degree to which inflation has affected various segments of the economy, the effects of not accounting for price changes and the position that the professional bodies have taken with respect to this issue.

RATE OF PRICE CHANGES

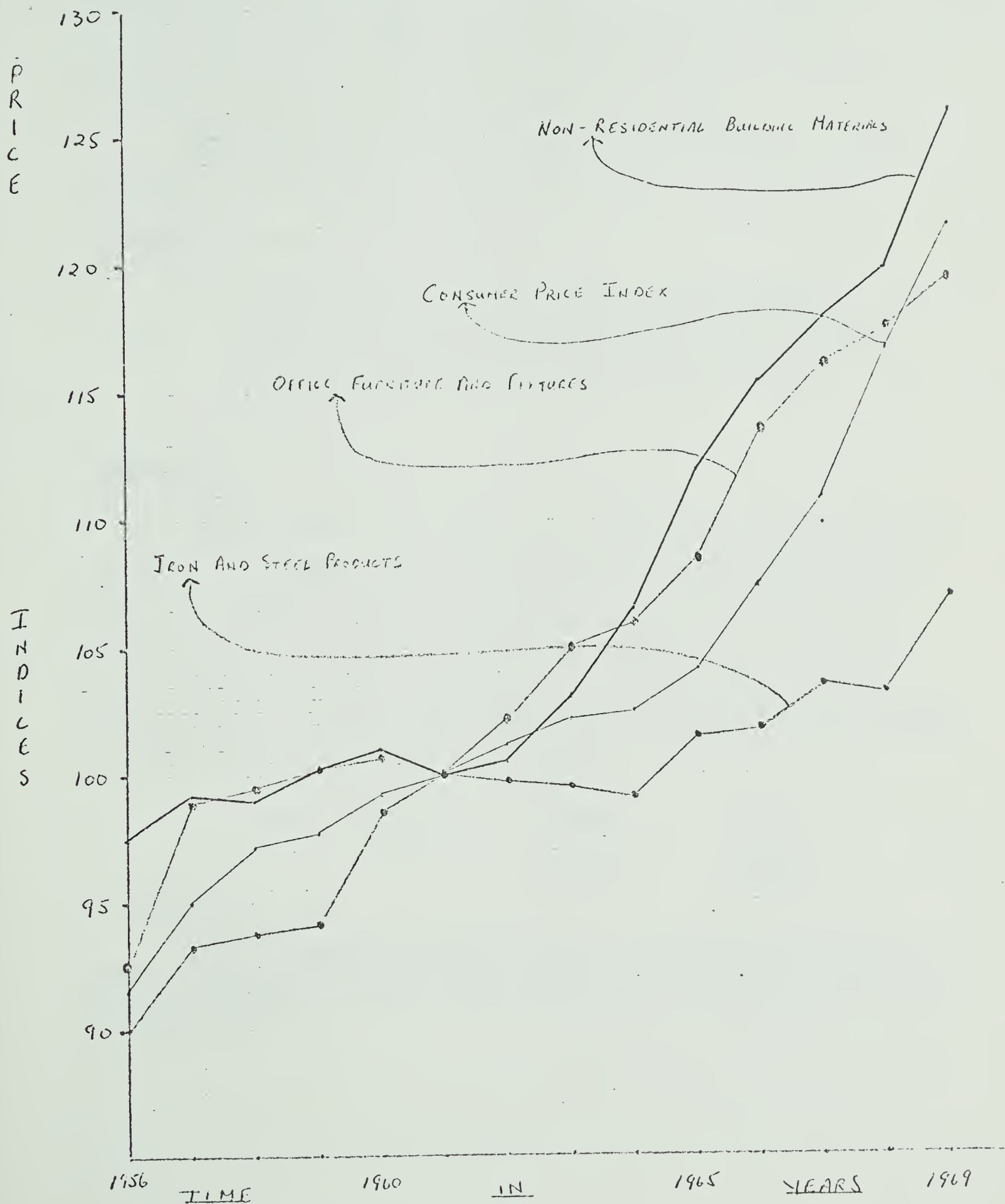
In order to appreciate the problem, Figure I illustrates the movement of prices both in a general pattern and in more specific areas.² The graph illustrates that in general (as represented by the Consumers Price Index) prices have risen at an annual average rate of approximately 2.7% since 1961 (1961 = 100). In contrast to this, price changes in specific assets have risen as much as 3.25% annually in the case of Non-Residential Building Materials to as little as .9% annually in the case of Iron and Steel products.

¹Accounting and Auditing Research Committee (Accountancy Research Foundations), "What's Wrong with Financial Statements," The Australian Accountant, XXXVIII, July 1968, p. 394.

²Canada, Dominion Bureau of Statistics, Prices Division. Prices and Price Indexes, Catalogue No. 62-002, Ottawa. Queen's Printer and Controller of Stationary, 1956 - 1969.

FIGURE I

CHANGE IN THE PRICE LEVELS OF VARIOUS GOODS AS
EXPRESSED IN TERMS OF INDICES (1961 = 100)



EFFECTS OF NOT ACCOUNTING FOR PRICE CHANGES

This section is provided to demonstrate by way of a few brief examples, some of the problems that are created by conventional accounting practices. More thorough explanations as well as alternative methods of accounting will follow later.

The failure to account for price level changes can lead to a number of harmful effects. Several of these are outlined by Gynther³ and are contained below:

1. overstatement of profits (because depreciation is understated in times of rising prices. Cost of goods sold are also understated and losses incurred by holding monetary assets when price rise are ignored).

Example (a)

A fixed asset is purchased for 10,000 dollars and has a life expectancy of 5 years. Cash receipts exceed cash expenses by 4,000 dollars per year and after deducting for depreciation charges of 2,000 dollars per year a conventional accounting profit of 2,000 dollars remains. At the end of five years the balance sheet indicates a profit of 10,000 dollars has been made.

Cash	20,000	Capital	10,000
		Profit	10,000

³R. S. Gynther, "Accounting for the Effects of Changing Prices," Paper presented to the Australian Society of Accountants - 18th Advanced Accounting Seminar, Victoria University of Wellington, August 1, 1969, p. 4.

During the 5 years however the price of the item has doubled and it now takes 20,000 dollars to purchase a similar fixed asset. Are there really any profits? The 5 year period began with no cash and a fixed asset. It ended with no cash and a similar fixed asset. Recording a profit of 10,000 dollars on the balance sheet is not congruent with common sense.

Example (b)

At the end of the third quarter, a firm which has an inventory turnover ratio of 4 times per year buys 1,000 items of inventory stock at a cost of 1 dollar per item. The items are sold for 2 dollars each at the end of the year but the cost to replace the 1,000 items has now risen to 1.25 dollars per unit. Conventional accounting practice in matching revenues and expenses dictates a profit of 1,000 dollars. However, if it now costs 25% more to replace its identical inventory the firm cannot be said to be \$1000 better off in terms of the purchasing power of these dollars. In this case the cost of the sale was undercharged by adherence to historical costs.

2. undervaluation of most assets.

Example (a)

Land is bought for 10,000 dollars. At the end of the year the same land can be sold for 15,000 dollars. Adherence to generally accepted accounting principles would indicate that no change has occurred during the year and the valuation of this asset on the balance sheet remains at 10,000 dollars.

3. overstatement of return on capital.

Example (a)

A firm owns two pieces of land which were acquired at a cost of 6,000 and 8,000 dollars respectively. Both are now valued at 10,000 dollars. The lots are currently leased to parking lot operators for an annual rent of 1,400 dollars. On the book value total of 14,000 dollars, this income represents an annual rate of return of 10% ($1,400/14,000$) but the "real" return is only 7%.⁴ ($1,400/20,000$).

4. incorrect evaluations of management and divisional performance.

Example (a)

A firm owns two subsidiary plants which are identical in all respects except for the fact that one was built in 1940 at a cost of 100,000 dollars while the other was built in 1960 at a cost of 200,000 dollars. Sales and cash expenses are the same. The plants have 50 year lives. The profit pictures for plants A and B may be assumed as follows:

	A	B
Sales	20,000	20,000
Expenses	<u>12,000</u>	<u>12,000</u>
	8,000	8,000
Depreciation	<u>2,000</u>	<u>4,000</u>
Profit before taxes	6,000	4,000

The managers of each plant are evaluated on the basis of return on assets employed. In the first case the R.O.I. is 6%

⁴The situation is further aggravated when depreciating asset is used.

(6,000/100,000) while that of the manager of B plant is only 2%. (4,000/200,000). Yet is there really any difference in the performance of the two managers other than the fact that due to historical cost conventions, A needs only report one half the investment base that B shows.

From the above discussion it may be observed that the following effects of not accounting for price changes are also in existence.

5. incorrect product costing and hence incorrect selling price determinations and decision making on sales contracts.
6. incorrect dividend and profit retention decisions.
7. the probability that taxes are paid on the consumption of real capital. This is due to the fact that depreciation charges are computed on the basis of past costs, resulting in an overstatement of profits in current or real terms.

POSITION OF PROFESSIONAL BODIES

The problem is compounded by the fact that the various accounting associations, while recognizing the inflationary problem, have been slow to issue official opinions on how to deal with it. Postulate C-4 of the Accounting Research Study No. 1 states that "Accounting reports should be based on a stable measuring unit."⁵ That our unit of measure has not been stable however, is hardly worth debating. The evidence of the fluctuation in the value of the dollar in recent decades is overwhelming and what is of greater

⁵M. Moonitz, "The Basic Postulates of Accounting," Accounting Research Study No. 1, (New York: American Institute of Certified Public Accountants, 1961) p. 50.

importance is the high probability that this fluctuation will continue. However, due to their reluctance to acknowledge changes in price levels,⁶ the various associations have come under a great deal of attack from accounting theorists and other interested parties. For example,

"according to the historical record convention which requires the original cost to be charged to a period, certain expenses are in the monetary unit of the current period while others such as depreciation; and to a certain extent, the cost of goods sold, are expressed in the operating account in monetary units which do not have the same purchasing power. It is just as inconceivable to add monetary units of different value as it is to add oranges and wood pulp."⁷

"It is fairly obvious that any business which fails to sell its product for a sufficient number of dollars to recoup the purchasing power invested or consumed in the particular period in the process of production, is operating unsuccessfully, and any accounting report which shows a condition to the contrary is basically invalid."⁸

Finally this lengthy quote by Perry Mason sums up very well the problem and criticisms of conventional accounting:

"In brief, then, without adjustments of the figures, the income statement suffers from price level changes by the lack of comparability of the accounting figures, from the failure of depreciation and similar costs to reflect the current price level and

⁶A notable exception is the Institute of Chartered Accountants of Scotland whose council has been much more tolerant toward the use of price level adjustments than have other chartered institutes.

⁷A. Riverin, "Accounting Profit - Myth or Reality," Cost and Management, (October 1961) p. 422.

⁸W. A. Paton, "Depreciation - Concept and Measurement," Journal of Accountancy, (October 1959) p. 40.

therefore to be comparable with current revenue figures, and from the resulting diminished significance of the reported net income. The balance sheet also suffers from lack of comparability of the various items. Cash receivables and the unpaid liabilities are expressed in current dollars, but the inventories and especially the plant and equipment are collections of non-comparable items since they are almost always a hodge-podge of various past period dollars representing different amounts of purchasing power gains and losses on the net monthly position are undisclosed stockholders and other investors are not provided with information which enables them to interpret the operating results and to judge the relative effect of price level changes upon a particular enterprise."⁹

Dissent such as the above has appeared in sufficient volume and force that the various associations and institutes have begun to stir. Ever since the Research Division of American Institute of Certified Public Accountants produced the Accounting Research Study No. 6¹⁰ the Accounting Principles Board has had the matter of accounting for changing prices under consideration. It is possible that an official "opinion" on the subject may be soon forthcoming. (The Board has issued Statement number 3 dealing with price level changes.)¹¹

Committees of the American Accounting Association have been issuing statements concerning the issues of price level accounting for the past two decades. Of late, these recommendations have become

⁹P. Mason, Price Level Adjustments and Financial Statements - Basic Concepts and Methods, (American Accounting Association, 1956) p. 11.

¹⁰A.I.C.P.A., op. cit.

¹¹A.I.C.P.A., "Financial Statements Restated for General Price Level Changes," APB Statement No. 3, APB Accounting Principles, Vol. 2, Commerce Clearing House Inc., Chicago, Illinois, 1969, p. 9007 - 9055.

stronger and the most recent publication: A Statement of Basic Accounting Theory supports methods of preparing financial statements based on current market buying prices.¹²

Through its Research Foundation, even the conservative Institute of Chartered Accountants in England and Wales has made strong recommendations for reporting the effects of changing prices.

To date, the Canadian Institute of Chartered Accountants has made no recommendations or proposals to deal with this issue, but a draft on the subject is currently in process.¹³

SUMMARY

An investigation into some of the adverse effects that not accounting for price changes can have was made and a number of these were listed and elaborated on by means of examples.

The position of the professional bodies was briefly examined and it now appears that due to pressure from external forces, a number of the institutes and associations may soon be prepared to endorse methods of reporting the effects of price level changes.

¹²American Accounting Association Committee to Prepare a Statement of Basic Accounting Theory, A Statement of Basic Accounting Theory, (Evanston, Illinois: American Accounting Association, 1966).

¹³The C.I.C.A., under the direction of L. S. Rosen, is currently preparing a draft on the subject.

CHAPTER III

ACCOUNTING FOR PRICE LEVEL CHANGES A REVIEW OF THE LITERATURE

INTRODUCTION

Broadly speaking there are two courses of action which accountants can take in dealing with the problem of price level changes. One is to develop supplementary statements which restate the conventional ones by means of a general index of prices. This can be termed the 'general' method. The other is to work out methods of reconciling and presenting both monetary and economic results in one set of statements and may be referred to as the 'specific' method. Within each of these two classifications exists a wide range of individual opinion indicating that accounting theorists have found it extremely difficult to agree on a workable method of measuring the periodic income of a firm. This chapter examines some of the theoretical issues involved and specifically an attempt is made to delineate and discuss the main capital concept ideas which underlie many of the debates.

CAPITAL MAINTENANCE¹

Many of the debates concerning whether, and in which way, to account for changing prices arise out of the particular capital

¹The rule which determines the amount of capital necessary at the end of the period to maintain the capital at the beginning of the period is defined in this paper as the capital maintenance rule.

maintenance concepts that individuals have. That is, different writers advocate the use of certain capital concepts to measure the amount of profit (or loss) that has resulted in a given period. J. R. Hicks defined a man's income as "the maximum value which he can consume during a week and still be as well off at the end of the week as he was at the beginning."²

Although stated in terms of the individual this concept is equally relevant to the firm. Income, for example, might be defined as the maximum amount which could be distributed in the form of dividends without encroaching on the firm's resources; or stated somewhat differently, the amount which, if retained, is available for expansion of the business.

The question of what is meant by "as well off" however, is debatable. Is the firm which has been able to just maintain its original capital as well off at the end of the period as it was at the beginning, or should the effects of changing prices in the economy and/or on the goods specific to the firm be included in the determination. Five³ of the principle capital maintenance concepts dealing with this point will now be briefly discussed.

²J. R. Hicks, Value and Capital, (Oxford: Clarendon Press) 2nd edition; 1946, p. 172.

³Schwayder also discusses a sixth concept - that of capital having a time dimension. Income is only measured after the recovery of the investment measured in monetary units adjusted for the time preference for cash of the investor. This is the rate at which the investor is indifferent between future and current cash. See Keith Schwayder, "The Capital Maintenance Rule and the Net Asset Valuation Rule," The Accounting Review, April 1969.

MONEY CAPITAL MAINTENANCE CONCEPT

This is the capital concept upon which the present conventional accounting methods are based. The concept "merely requires the maintenance of the original quantity of money units invested in an entity, irrespective of movements in purchasing power. Anything in excess of contributed dollars is looked upon as profit."⁴ Those who hold the money capital maintenance concept do so mainly because of the objectivity of historical costs. This is certainly the position of Wilcox and Greer, for example, who state in their arguments against price level adjustments: "The greater the elements of objective evidence and the less the elements of a subjective judgement that enter into income determination, the better. Objective evidence gives no play to preference, interest or caprice, and leads to understandable criteria."⁵ Apart from research studies conducted, this capital maintenance concept also represents the official views of the professional bodies in the Commonwealth countries and in the United States.

A good deal of academic opinion, however, considers the maintenance of money capital to be an outdated concept and the literature abounds with writings which are strongly opposed to it. One of the earliest critics arguing for an explicit recognition of changing

⁴Gynther, "Accounting for Price Changes - Theory and Practice," Paper presented to the Australian Society of Accountants Victorian Division of the Twenty-eighth Annual Research Lecture, University of Melbourne, October 26, 1967, p. 3.

⁵E. B. Wilcox and H. C. Greer, "The Case Against Price Level Adjustments in Income Determination," The Journal of Accountancy, XC No. 6, (December 1950) p. 415.

prices in the accounts was Sweeney who contended that historical cost accounting was deficient unless related in terms of uniform dollars of general purchasing power. He charged that a balance sheet prepared according to historical cost conventions provides an incorrect picture because it adds, as equals, units of varying purchasing power. He went on to say,

"Now, the success of the whole system of business depends upon the truthfulness of reports. The truthfulness of reports depends mainly on the truthfulness of accounting. The truthfulness of accounting depends largely on the truthfulness of the dollar - and the dollar is a liar! For it says one thing and means another."⁶

Sweeney's work stood virtually alone until post-war inflationary pressures rekindled the fires of thought in the field. The quotes attributed to Riverin,⁷ Paton⁸ and Mason⁹ in the previous chapter are examples of the criticisms of conventionally prepared statements which appeared during the fifties and early sixties. And thirty years after Sweeney's work, the same argument is still being advanced as witnessed by the following question from Sprouse.

⁶R. J. Chambers, Accounting Evaluation and Economic Behavior, (Prentice-Hall Inc., Englewood Cliffs, New Jersey, 1966) p. 95, quoting H. W. Sweeney, Stabilized Accounting, (New York: Harper & Row, Publishers, 1935), p. 11.

⁷Paton, "Depreciation - Concept and Measurement," p. 40.

⁸Riverin, "Accounting Profit," p. 422.

⁹Mason, Price Level Adjustments - Basic Concepts, p. 11.

"What is the nature of the amount of net income for the year as determined by the application of accounting principles which are currently deemed to be generally acceptable, or stated more generally, as determined by an accounting for historical costs as modified by conservatism?"¹⁰

THE GENERAL PURCHASING POWER CAPITAL MAINTENANCE CONCEPT

This concept does not recognize profit until capital which has been adjusted to reflect movements in a general purchasing power index has been maintained. To accomplish this, proponents of this concept favour using a general index which represents the movements of prices of all goods in the economy. The Accounting Research Study No. 6 published by the A.I.C.P.A. endorses this view. It recommends,

"the presentation of completely adjusted (for effects of general price-level changes) financial statements, either as supplementary exhibits or in extra columns in the primary exhibits."¹¹

The American Accounting Association Supplementary Statement No. 2 of 1951 also held this viewpoint.¹²

"The effects of price fluctuations upon financial reports should be measured in terms of over-all purchasing power of the dollar - that is, changes in the general price level as measured by a general price index. For this purpose adjustments should not be based on either the current value or the replacement costs of specific types of capital consumed."¹³

¹⁰R. T. Sprouse, "Historical Costs and Current Assets - Traditional and Treacherous," Accounting Review, October 1963, p. 689.

¹¹ A.I.C.P.A., Accounting Research Study No. 6, p. 53.

¹²The more recent "Statement of Basic Accounting Theory" published by the American Accounting Association advocates the use of current costs in conjunction with this Capital Maintenance concept. More of this will be discussed later.

¹³American Accounting Association, "Price Level and Financial Statements," Accounting Review, VXXVI, No. 4, (October 1951) p. 471.

Wilk is another advocate of this type of accounting.

"The first essential is a yardstick and the only one which is applicable to all business and to all types of assets and liabilities is the general purchasing power of money."¹⁴

Graham in commenting on the method used by Phillips Electrical Company (replacement costs) in the Netherlands states.

"It demonstrates that adjustments of accounts to reflect price change is practical. It should be noted that adjustments based on a single general price index would even be more practical."¹⁵

As supporters of this particular proposal see it, one general index would be used for restating all of the firm's accounts. For example, if land¹⁶ was originally purchased at 50,000 dollars when the G.P.L. was 100 and the general index has since risen to 150 the adjusting entry would be:

Land	25,000
Capital Maintenance Adjustment	25,000
(Being the restatement of Land and Capital at 75,000 dollars)	

Others however, who favour the same capital maintenance concept,

¹⁴R. S. Gynther, Accounting for Price Level Changes: Theory and Procedures, p. 43 quoting L. A. Wilk, Accounting for Inflation, (Sweet and Maxwell, London, 1960) p. 35.

¹⁵W. J. Graham, "Defining Income," Journal of Accountancy, Vol. 109 - 110, (August 1960) p. 29.

¹⁶Non-depreciating asset used for purposes of simplicity.

would revalue assets in a different manner.¹⁷ Instead of restating all the accounts for movements in the general price level, they would value the asset and depreciation accounts in accordance with movements in the current buying prices of the particular item or use specific indices in the absence of definite market prices. Any differences arising from the movement of current market buying prices and the result of the changes in the general price index would be treated as holding gains or losses. This matter will be more fully discussed in a subsequent section.

Holding gains and losses are also recorded on net monetary assets and liabilities, both short and long term, under general purchasing power capital maintenance concept. If for example an average of 20,000 dollars of net monetary liabilities were held during the year, a holding gain would be recorded to the following effect.¹⁸

Capital Maintenance Adjustment	10,000
Gain on Holding Net Monetary Liabilities	10,000

This concept also has its outspoken critics who in the main feel that taking all goods and services into account when adjusting for price level changes bears little relationship to the individual firm dealing in specific resources and assets. Russell Matthews, in a devastating attack on the recommendations of the AICPA's Accounting

¹⁷Notable example is American Accounting Association, A Statement of Basic Accounting Theory, (American Accounting Association, 1966).

¹⁸G.P.L. rises from 100 to 150 during period. Therefore there exists $.5 \times 20,000 = 10,000$ dollars in purchasing power gains since the 20,000 dollar liability can be paid off in dollars which have only one-half the value at the end of the period as they did at the beginning.

Research Study No. 6 states that "because all prices normally do not change at a uniform rate, the results from the Price Level Study are meaningless for purposes of analysis and business policy."¹⁹ It further points out that the study's laborious calculation procedures "result in data that are likely to be just as misleading to managers, stockholders and other interested parties as historical cost data."²⁰

Wright challenges the common sense of maintaining general purchasing power and adds that "it is difficult to think of a reason why a firm should wish to preserve its power to purchase things in general. This would reflect neither a management viewpoint nor an owners viewpoint."²¹

THE SHAREHOLDER PURCHASING POWER CAPITAL MAINTENANCE CONCEPT

This concept arose specifically because it was argued that shareholders would prefer to see contributed capital restated to reflect movements in the Consumers Price Index - an index which bears a closer relationship to the goods which are of interest to investors than does the former more general adjustment.

Similar to the previous, this concept does not recognize profit until capital is restated to reflect movements in the Consumer Price Index and is based on the principle of maintaining the shareholder's

¹⁹R. L. Matthews, "Price Level Changes and Useless Information," Journal of Accounting Research, III, (Spring 1965) p. 138.

²⁰Ibid., p. 148.

²¹F. K. Wright, "Accounting and Price Changes," in R. J. Chambers, L. Goldberg and R. L. Matthews (eds.), The Accounting Frontier, (Melbourne: F. W. Cheshire, 1965) p. 72.

ability to purchase consumer goods.

As in the previous case holding gains and losses will or will not be recorded on assets depending on the type of asset valuation used. If the Consumer's Price Index is used throughout the calculations to restate the accounts, then the holding gains or losses will be restricted to short and long term monetary items. If, in addition, the assets are valued at current prices then the difference between the Consumer Price Index change and the change in the price of the specific assets will also be recorded as a holding gain or loss.

This latter approach appears to be the method favoured by Edwards and Bell²² and Chambers²³ who while maintaining capital via a consumer oriented index would also reflect changes in prices of specific assets.

Although this capital maintenance concept is more refined in terms of whom it purports to serve, several limitations of the idea may be observed.

In Canada the Consumer's Price Index is compiled for urban families with annual incomes ranging from 2,500 to 7,000 dollars.²⁴ This is not representative of all shareholders. In fact while shareholders in Canada come from all income brackets most of them are likely to be from the higher income levels. Thus it may not be reasonable to

²²E. O. Edwards and P. W. Bell, The Theory and Measurement of Business Income.

²³R. J. Chambers, Accounting Evaluation and Economic Behavior.

²⁴Canada, Dominion Bureau of Statistics, Price and Price Indexes, Catalogue No. 62-002.

suggest that those in higher income positions follow the same consumption pattern as those upon whom the index is based. This would be especially true of institutions and organizations acting in a shareholder capacity. In addition, investors in a firm are not always from the same geographical location and as such their consumption patterns may differ quite radically. Therefore there is a problem for the universality of the Consumers Price Index.

Apart from these objections there are those²⁵ who oppose the shareholder purchasing power concept of capital maintenance on the basis that accounting should revolve around the firm and not the shareholder.

THE INVESTMENT PURCHASING POWER OF THE FIRM CAPITAL MAINTENANCE CONCEPT

This concept of capital maintenance is the first to deal specifically with the firm as opposed to maintaining the purchasing power of the shareholder or of goods and services in general. Under this concept profit is recognized only when the investment power of the firm has been maintained. This is accomplished by restating the capital account by an index which reflects investment purchasing power. Eldon Hendrikson,²⁶ the principal advocate of this theory presents three different levels of possible investment purchasing power. The first of these is the general investment purchasing power which would require the use of one overall investment index for the economy. The second is the

²⁵See R. S. Gynther, Accounting for Price Level Changes: Theory and Procedures.

²⁶E. S. Hendrikson, Accounting Theory, (Homewood, Ill.: Richard D. Irwin, Inc., Rev. Ed., 1970).

industry investment purchasing power which would require the use of one index for each industry to reflect movement in prices of those goods and services that firms in each industry might invest. Lastly he proposes an investment purchasing power index relating to the behavior of each individual firm.

In each case the emphasis is on maintaining the firm's capital in accordance with the price movements of investment goods that they might purchase - as distinct from the price movements of goods in general or goods which are likely to be consumed by shareholders.

Hendrikson recommends the first of his concepts as being the most relevant since many firms diversify their investments over time and either move from industry to industry or at least to different branches within the same industry. In accounting for price level changes Hendrikson recommends the use of a single investment index for the economy which, he feels, would offer the advantage of uniformity among companies and ease of application once the index is determined. With regard to the selection of an index, he explains:

"While no such comprehensive index is now available, an approximation could be obtained by combining the implicit price deflators for "other new construction" and "producers' durable equipment" segments of G.N.P. and adjusting for changes in inventories."²⁷

He feels that the second and third proposals are in order of decreasing merit as the use of indexes restricted either to one industry or one firm does not allow for the possibility of future changes in investment mix. Furthermore, "it would be difficult and costly to

²⁷E. S. Hendrikson, Accounting Theory, p. 226.

compute a price-level index for each specific firm."²⁸

The method of proceeding is identical to that illustrated in the previous two capital maintenance ideas; the only difference being that the movement in an investment purchasing power index is used and not the movement in the general or consumers price index. Thus all assets may be similarly adjusted by the use of one investment index or holding gains and losses may be incurred if the assets are adjusted according to specific price changes whose movements are different from the investment purchasing power index.

For example, assume land which was purchased for 100,000 dollars is currently worth 130,000 dollars and that during this period the investment purchasing power index has risen 10%. Depending on the method chosen, either of the two following entries could be made to reflect the change.

Land	10,000	
Capital Maintenance Adjustment		10,000
(Being the restatement of Land		
and Capital at 110,000)		
or		
Land	30,000	
Capital Maintenance Adjustment		10,000
Holding Gain		20,000
(Being a revaluation of land to its		
current worth of 130,000, while		
maintaining capital according to		
an investment purchasing power		
index change of 10% and recognizing		
a holding gain of 20,000 dollars).		

²⁸Ibid., p. 236.

While holding gains and losses are recognized on short term monetary items under this concept, gains from holding long term liabilities in periods of inflation are not. This appears to be due to the fact that those who hold the entity²⁹ viewpoint of capital maintenance (e.g. Hendrikson, Gynther, Sprouse) wish to maintain the purchasing power of all long term capital while those with a proprietary³⁰ point of view (e.g. ARS #6, Jones, Mason, Wilk) attempt merely to maintain the purchasing power of shareholders funds. Hendrikson maintains that profits should not be calculated on long term liabilities

²⁹The entity concept. A business enterprise - a proprietorship, partnership, or a corporation - is recognized as a separate and distinct organization from the owners and contributors of capital. The accounting equation for an entity is, the sum of assets equals the sum of liabilities plus equities. The liabilities may also be considered as equities because they represent different rights in the enterprise. Considering the business enterprise as an entity means that earnings are regarded as income of the business and not that of the shareholders until dividends are declared. Interest payments on debt are considered as distributions to equity holders and retained earnings are equities of the enterprise and not those of the shareholders. The entity being a separate and distinct organization has its own sets of objectives of survival and growth and there is a need for presenting external reports for the benefit of investors, creditors and other interested groups.

³⁰The proprietary concept. According to the proprietary concept the owners or shareholders are the centre of interest of the business enterprise. The accounting equation for the proprietary concept is that assets minus liabilities equals proprietorship. Assets are considered to be owned by shareholders and liabilities as their obligations. Revenues increase shareholders equity, expenses decrease it. Net income of the enterprise accrues to the shareholders and increases their capital contributions. Interest on debt is considered as an expense. The proprietorship concept emphasizes that increases and decreases in the equity of the enterprise are actually increases or decreases in the wealth of the owners.

For a further discussion see D. H. Li "The Nature of Corporate Residual Equity under the Entity Concept" Accounting Review (April 1960) p. 258 - 263.

because,

"the entire investment in the firm is the same regardless of the amount represented by stockholder's equity and the amount represented by bondholder's equity. Therefore for purposes of determining the amount of total investment to be maintained, the gain or loss due to the holding of long term debt is irrelevant. Only the gains or losses from the holding of monetary working capital during periods of price changes should be considered as changes in total equity."³¹

Sprouse supports this argument,

"Because corporate assets are considered owned by the corporation itself and all corporate obligations are considered the obligations of the corporation itself, there is no significant distinction to be made between common shareholders, preferred shareholders, bondholders and other long-term obligies."³²

as does Gynther, who says,

"To entity people it would be just as inconceivable to create profits on holding such long-term liabilities during price rises as it would be to calculate such profits on ordinary share capital."³³

Authors with the proprietary point of view support the calculation of profit and losses on long term liabilities and counter as follows,

"debentures are liabilities on the company and do not represent part of the company's capital."³⁴

³¹E. S. Hendrikson, Price Level Adjustment of Financial Statements - An Evaluation and Case Study of Two Public Utility Firms, (Washington State University Press, 1961) p. 86.

³²R. T. Sprouse, "The Significance of the Concept of the Corporation in Accounting Analyses," Accounting Review, (July 1957) p. 370.

³³R. S. Gynther, Accounting for Price Level Changes, p. 140.

³⁴L. A. Wilk, Accounting for Inflation, p. 81.

Jones argues that the taking into account of all purchasing power gains and losses "probably gives the most realistic measure of the total effect of inflation or deflation on the common stock."³⁵

SPECIFIC REPLACEMENT PURCHASING POWER CAPITAL MAINTENANCE CONCEPT

Other writers, in particular Gynther, are in for more agreement with Hendrikson's latter proposal (i.e. purchasing power relating to the behavior of the individual firm) that his more general recommendation since they favour the position that,

"firms do tend to remain in their particular industries.... Companies in a particular industry use certain kinds of assets and stocks and the tendency is for these to be replaced by similar kinds of assets and stocks."³⁶

Gynther carries his own definition of a capital maintenance concept slightly further than that of Hendrikson however and defines an "Operating Capacity of the Firm Capital Maintenance Concept,"³⁷ as one in which "there can be no profit until each firm is in the position of being able to maintain its asset resources and operating capacity that these provide."³⁸ This concept is based on a maintenance capital in terms of productive capacity instead of a specific or general purchasing

³⁵R. C. Jones, Price Level Changes and Financial Statements - Case Studies of Four Companies, (American Accounting Association, 1955) p. 82.

³⁶R. S. Gynther, "Accounting for Price Changes - One General Index or Several Specific Indexes," Accountancy, (July 1962) p. 562.

³⁷R. S. Gynther, "Accounting for Price Level Changes - Theory and Practice," p. 9.

³⁸Ibid., p. 9.

power.

"By using current market buying prices (or specific indexes) to adjust contributed capital when various assets are revalued and when making the necessary calculations of losses and profits on monetary items during such price changes, the firm is placed in the best position of being able to maintain the same assets (operating capacity) if this is its desire."³⁹

Since each asset is revalued by a current buying price (or specific indexes in their absence) and since the goal of the firm is the maintenance of its operating capacity, no holding gains or losses are recorded on asset revaluation.

For example, if land rose in value from 50,000 dollars to 80,000 dollars during a period of general price level increase of 100 to 110, the entry would be as follows:

Land	30,000
Capital Maintenance Adjustment (Being a revaluation of land from 50,000 to 80,000 in order to maintain operating capacity capital).	30,000

The capital adjustment is for the full amount of 30,000 dollars. There is no holding gain (or loss) as was perceived in the previous capital concepts. Advocates of this viewpoint see the investment in the permanent asset as having increased by 30,000 dollars and desire to restate the asset and capital accordingly. To create a holding gain, as in the previous cases, would be incorrect, "because the gain could not be distributed without impairing operating capacity."⁴⁰

³⁹Ibid., p. 10.

⁴⁰R. S. Gynther, "Accounting for the Effects of Changing Prices," p. 19.

Other writers⁴¹ are in agreement in principle with Gynther.

Jean St. G. Kerr for example states that,

"under the current cost concept of income the emphasis is placed on things, physical assets rather than money or purchasing power units, as a result of which the capital at the beginning of the period is considered as comprising a group of physical assets which is eventually converted into funds, a portion of the funds being used to replace the physical assets and the balance being income for the period. We have then a change from accounting for things in terms of money or purchasing power units, to accounting for money in terms of things and the capital which is being maintained intact is the real physical capital and not the financial capital or a pool of purchasing power."⁴²

For recording monetary gains and losses Gynther recommends the use of specific indexes representing the price change of the goods for which monetary items are held. For example, gains or losses on accounts payable might be calculated by using specific indexes representing the movements in the prices of inventories concerned. For cash items, an index representing the movement in labour prices and operating expenses might be used.

Gynther's position can be nicely summarized by the following quote:

"It seems to this writer that the only way to restate capital (and indirectly revalue assets and determine profits) when prices are changing, is to base the accounting system on specific

⁴¹See for example, A. Goudekot, "An Application of Replacement Value Theory," Journal of Accountancy, (July 1960) p. 38.

⁴²Jean St. B. Kerr, "Three Concepts of Business Income," The Australian Accountant, (April 1956) p. 141.

price changes of the individual assets, as they actually exist, in their actual geographic situation, etc."⁴³

Criticisms of this concept come from two fronts. For example, the idea of maintaining physical capital drew this remark from Sweeney.

"Maintenance of material capital is theoretically and practically objectionable. It, likewise, may lead to ruin.... Maintenance of absolute material capital is based upon an incorrect concept of the purpose of economic activity. Practically, also, it is either unsafe because the individual price level of the capital has decreased in relation to the general price level during this period of investment, or too conservative because the specific price level has, on the contrary, relatively increased. To the extent that depreciation on reproductive cost aims to maintain material capital, it is to be condemned."⁴⁴

For the reasons stated by Sweeney, advocates of the proprietary viewpoint are in general disagreement with an operating capacity of the firm capital maintenance concept. Hendrikson, however also criticizes Gynther's assumption that firms are unlikely to reinvest in goods and inventories different from what they had in the past and also attacks what he feels to be a narrow approach to holding gains and losses on monetary items. He feels that "a broader index would probably be more appropriate because monetary liabilities do not generally finance specific items."⁴⁵

⁴³R. S. Gynther, "Accounting for the Effect of Changing Prices," p. 29.

⁴⁴H. W. Sweeney, "Maintenance of Capital," Accounting Review, (December 1930) p. 253 and 261.

⁴⁵E. S. Hendrikson, Accounting Theory, p. 228.

NET ASSET VALUATION

The previous section has dealt with various concepts of capital maintenance or the rule which determines how much capital it takes at the end of a period to maintain the capital at the beginning of the period. Mention was also made on several occasions that different asset valuations could be applied within a given capital maintenance concept. The purpose of this section is to elaborate briefly on those valuations.

The net asset rule is defined by Shwayder as "the set of rules which determines the balance sheet of the firm, exclusive of the owner's equity section."⁴⁶ The net asset valuation rule thus determines the amount of, but not the composition of, the owner's equity section. The capital maintenance rule determines the composition of that account.

As in the case of capital maintenance various writers advocate different rules for valuation of assets. Any one of the following asset valuations could apply to a given capital maintenance rule.⁴⁷

1. Historical cost.
2. Historical cost adjusted by a general purchasing power index.
3. Historical cost adjusted by a consumer's price level index.
4. Historical cost adjusted to a particular investment purchasing power index.

⁴⁶K. Shwayder, "The Capital Maintenance Rule and the Net Asset Valuation Rule," p. 305.

⁴⁷Other possible asset valuation exist. See, for example, R. J. Chambers, Accounting Evaluation and Economic Behavior, p. 92 who recommends "current cash equivalents" and E. O. Edwards and P. W. Bell, The Theory and Measurement of Business Income, who advocate "exit" prices.

5. Replacement cost or current buying value or cost adjusted to specific asset indexes.

Some of the different capital maintenance - asset valuation alternatives are illustrated in Figure I. Although only a small number of alternatives in the matrix have been proposed other combinations are feasible. For example, it would be possible (not probable) to combine asset measurements based on historical cost with one of the purchasing power capital maintenance rules. This might be the case where a conservative valuation is required even though it is believed that capital should be adjusted to reflect the additional amount required to maintain the original investment.

Any entry along the diagonal will result in zero real holding gains and losses since both the assets and capital accounts are revalued by the same adjustment factor. Those combinations not occurring along the diagonal will of course result in a holding gain or loss depending on the relative strength of the price changes.

The use of different asset valuation rules results in differences of periodic net income when the same capital maintenance rule is used. However, the total lifetime income is unaffected. To illustrate this point, assume the following situation:

1. An entrepreneur invests 100,000 dollars in cash and purchases 20,000 widgets at 5 dollars each.
2. Immediately sells all the widgets for 10 dollars each.
3. Buys more widgets with the proceeds but finds that the replacement cost of the items is now 10 dollars each. Therefore he buys 20,000 widgets.
4. Holds these until the end of the year at which time the replacement cost of the stock has risen to 15 dollars each.

FIGURE 2

Matrix Illustrating Various Net Asset Valuation and Capital Maintenance Rules

NET ASSET VALUATION RULES

Replacement Cost, Current
Market Buying Value or
Historical Cost Adjusted
By Specific Price Level
Index

Historical Cost
Adjusted By
Investment Purchas-
ing Power Index

Historical Cost
Adjusted By
Consumer Price
Level Index

Historical Cost
Adjusted By
General Price
Level Index

Historical Cost
Adjusted By
General Price
Level Index

Money Capital
Maintenance Concept

General Purchasing
Power - Capital
Maintenance Concept

Shareholder
Purchasing Power
Capital
Maintenance Concept

Investment
Purchasing Power of
the Firm Capital
Maintenance Concept

Operating Capacity
of the Firm Capital
Maintenance

Accounting
Research Study
#6

Jones

American Accounting Assoc-
iation Statement of Basic
Accounting Theory

Chambers,⁴⁸
Edwards and Bell⁴⁸

Hendrikson

Gynther

CAPITAL MAINTENANCE RULES

⁴⁸See footnote 47.

5. General price level has risen 5% during year.
6. Continues to hold the 20,000 units until the end of the second year at which time he sells them for 12 dollars each.
7. During the year the general price level rose an additional 5%.
8. Cash is withdrawn as soon as the financial statements for the year are prepared.

To illustrate the effect on the timing and total amount of income obtained from the above situation one capital maintenance rule - the general purchasing power capital maintenance rule and two net asset valuation rules - (1) the historical cost adjusted by the general price level index and (2) replacement cost rules will be used.

ALTERNATIVE I -

Capital Maintenance Rule - General
Purchasing Power Capital
Maintenance Concept.

Net Asset Valuation Rule - Historical
Cost Adjusted by General Price
Level Index.

INCOME STATEMENT (Year 1)

	<u>Unadjusted</u>		<u>Adjustment</u>		
Sales	200,000	x	1.05	=	210,000 ⁴⁹
Cost of Sales	100,000	x	1.05	=	<u>105,000</u>
Operating Income					105,000
Gain (loss) due to holding Inventory in relation to adjusted cost (210,000 - 210,000)					0
Net Income (in terms of end of year 1 dollar)					<u>105,000</u>

BALANCE SHEET (Year 1)

<u>Assets</u>		<u>Equities</u>	
Inventory ⁵⁰	210,000	Contributed Capital	105,000 ⁵¹
	<u> </u>	Retained Earnings	<u>105,000</u>
Total Assets	210,000	Total Equities	210,000

⁴⁹To show restatement of beginning of year sales and cost of sales in terms of year end dollars.

⁵⁰To show restatement of inventory purchased at first of year in terms of year end dollars.

⁵¹To show restatement of capital in terms of year end dollars.

INCOME STATEMENT (Year 2)

	<u>Unadjusted</u>		<u>Adjustment</u>		
Sales	240,000	x	1.00	=	240,000
Cost of sales	210,000	x	1.05	=	<u>220,500</u>
Net income (in terms of end of year 2 dollars)					19,500

BALANCE SHEET (Year 2)

<u>Assets</u>		<u>Equities</u>	
Cash	240,000	Contributed Capital	110,250
	<u> </u>	Retained Earnings	<u>129,750</u> ⁵²
Total Assets	240,000	Total Equities	240,000

ALTERNATIVE II -

Capital Maintenance Rule - General
Purchasing Power Capital
Maintenance Concept.

Net Asset Valuation Rule - Replace-
ment Costs.

⁵²To restate retained earnings in terms of end of year 2 dollars. Includes $105,000 \times 1.05 = 110,250 + 19,500 = 129,750$.

INCOME STATEMENT (Year 1)

	<u>Unadjusted</u>		<u>Adjustment</u>		
Sales	200,000	x	1.05	=	210,000
Cost of Sales	100,000	x	1.05	=	<u>105,000</u>
Operating Income					105,000
Gain (loss) due to holding inventory in relation to adjusted cost (300,000 - 210,000)					<u>90,000</u>
Net Income (in terms of end of year 1 dollars)					195,000

BALANCE SHEET (Year 1)

<u>Assets</u>		<u>Equities</u>	
Inventory (at replacement cost)	300,000 <u> </u>	Contributed Capital	105,000
		Retained Earnings	<u>195,000</u>
Total Assets	300,000	Total Equities	300,000

INCOME STATEMENT (Year 2)

	<u>Unadjusted</u>		<u>Adjustment</u>	
Sales	240,000	x	1.00	= 240,000
Cost of Sales	300,000	x	1.05	= <u>315,000</u>
Net loss (in terms of end of year 2 dollars)				(75,000)

BALANCE SHEET (Year 2)

<u>Assets</u>		<u>Equities</u>	
Cash	240,000	Contributed Capital	110,250
	<u> </u>	Retained Earnings	<u>129,750</u> ⁵³
Total Assets	240,000	Total Equities	240,000

Note that in these two cases the total lifetime income of the firm was the same, (129,750). It was merely the timing of the income due to different asset valuation rules which was affected. Alternative capital maintenance rules, however, would have resulted in different total net income figures.

SUMMARY

This chapter has examined some of the theoretical issues involved in price level accounting.

Perhaps the most widely quoted definition of income at the present time is that of J. R. Hicks who defined a man's income as being "the maximum value which he can consume during a week and still

⁵³To restate retained earnings in terms of end of year 2 dollars. Includes $195,000 \times 1.05 = 204,750 - 75,000 = 129,750$.

be as well off at the end of the week as he was at the beginning."⁵⁴ This concept of income has been adopted by many accounting theorists and discussion in the literature is centred around what is meant by the expression "as well off" as to whether it refers to the maintenance of financial capital, physical capital or an equivalent number of purchasing power units. Five of the current capital maintenance ideas concerned with this point were presented together with their advocates and critics.

It was pointed out that the choice of a capital maintenance rule may depend on whether the user has an entity or proprietary viewpoint.

The adoption of the concept of income as being the result of the matching of revenues with costs relevant to those revenues has focused attention on the question of what is meant by relevant cost. As in the case of capital maintenance a number of opinions on how to best treat costs and value assets were offered. Support was found for historical cost, historical cost adjusted for changes in a particular purchasing power index and for the group of costs which can roughly be lumped together as replacement costs.

It is these differences in the concept of the capital to be maintained intact and in the cost concept which is relevant to the revenues earned during a period, which make the selection of an accounting model to deal with price changes so difficult.

This now concludes the theoretical background to the study.

⁵⁴J. R. Hicks, Value and Capital, p. 172.

CHAPTER IV

THE STUDY

INTRODUCTION

The purpose of this chapter is to illustrate the results of accounting for price level changes on the conventional financial statements of The Great West Steel Company.

Two different types of adjustments are demonstrated.

- (1) adjustments effected by means of a general price level index,
- (2) adjustments effected by means of a general price level index but which also include fixed asset and inventory items which have been adjusted to current replacement costs by means of specific indexes.

THE GREAT WEST STEEL COMPANY

The Great West Steel Company is a privately held, Edmonton based firm that was incorporated under the Alberta Labour Act on November 24, 1964.

The company was founded on the conviction that during the next few decades, Western Canada would be the scene of major resource development. The philosophy of the original five shareholders was to start a company which obtained at least 50 percent of its revenues from sales to the resource industries, and to become, at the same time, highly technical and sound from an engineering point of view. If these conditions could be realized they felt that they would differ

from the more conventional steel companies and be in more favourable position to negotiate with the various resource industries in the area.

The company met these objectives and expanded by developing a product that was unique to Western Canada - the open web steel joist. This product has been highly successful as indicated by the fact that other steel fabricators throughout Western Canada are among the major consumers of Great West Steel joists.

Presently the company is engaged in designing, fabricating and erecting structural steel for all types of construction projects. Its main types of products and percentage of sales dollars are as follows:

1. Joists	30%
2. Resource Industry Sales	30%
3. Heat Exchangers	20%
4. Conventional Steel Products	20%

The company has expanded, from its initial plant and head office in Edmonton, to include four wholly owned subsidiaries, two of which are located in Alberta and one each in Saskatchewan and British Columbia. This study is restricted to the operations of the Edmonton based plant.

BACKGROUND TO THE STUDY

After The Great West Steel Company had agreed to the study, a number of interviews and discussions were carried out with the president, comptroller and other members of the firm. During these discussions the philosophy of accounting for price level changes and the different

ways in which adjustments to the statements could be made were proposed. Primarily however, it was the aim of the writer to find out from the members of the firm, and in particular the president, what type of information was desired from their financial reports and based on this knowledge to adjust the statements accordingly.

The president of the firm, a graduate in economics from the University of Alberta, was insistent on three main points. Firstly, he felt that if he were to use price level adjusted statements for purposes of floating a stock issue in the event the firm went public, then the reports would have to be in a form which was recognized and approved by the accounting institutes. At the present time this would appear to involve statements which are adjusted in terms of a general purchasing power index only. He was also concerned about the effect of 'creeping' inflation on the purchasing power of the dollar and was most interested in ascertaining how well, in terms of dollars and cents, the firm's policy of carrying excess monetary liabilities over monetary assets was paying off during this inflationary period.

Thirdly, in the area of capital expenditures, it was the president's philosophy that,

"we should always be talking about the opportunity cost of making an expenditure versus not making that expenditure. Because we are looking at a specific situation, I think we can use a micro analysis, but if we are looking at the overall corporation, I think it has to be tied to a general price index to see how we compare with the economic growth of the country in general."¹

¹K. Heffel, President, The Great West Steel Company. Private interview, May 1970.

This seemed to warrant an investigation into the comparative movements of specific and general price indicators of the particular classics of fixed assets held by the company.

The comptroller, a graduate R.I.A. was in basic agreement with the president.

As a result of these discussions, it was agreed that two different adjusted statements would be prepared. The first would be a general price level adjusted statement which would convert all the historical dollar amounts on the balance sheet and income statement to dollars of equivalent purchasing power. The second would also be a general price level adjusted statement, however, movements in the prices of specific fixed asset and inventory items in relation to the movement of the general price level would also be taken into account to determine holding gains and losses in those particular non-monetary asset accounts.

THE PRICE LEVEL ADJUSTED STATEMENTS

1. GENERAL PRICE LEVEL ADJUSTED STATEMENT CHOICE OF INDEX AND UNIT OF MEASUREMENT

All price indexes involve a selection of commodities and services and are intended to be used for more or less specific purposes. Some however are more general than others and can serve well as indexes of the general price level. The two indexes most widely used to show movements of a general pattern are the consumers price index and the implicit price deflators used in the calculation of the gross national product. The latter is the less restrictive of the two and in view of the president's remarks concerning a broad general index, this study

has used the gross national product implicit price deflator, published by the Dominion Bureau of Statistics.² The index is implicit in the relationship between the current and constant dollar estimates of the gross national product and,

"encompasses all exchange transactions in the economy that effect the general level of prices. It is the only index presently compiled that reflects an average of all goods and services exchanged in all segments of the economy. It is an index of the prices of final products, consumer purchases, and business investment."³

Once the index has been chosen, the dollar of a particular date or period must be selected for use in restating the financial data in terms of a unit of uniform purchasing power. Several alternatives exist in this regard. One possibility is to take the year in which the company was formed as the base date and adjust all future year's statements in terms of the equivalent dollars of the base year. Another alternative is to use the base period of the index series, which in the case of almost all of Canada's published indexes is 1961, and express the results of all financial reports in terms of the dollar of this base period.

The prevailing opinion, however, seems to be that it is easier to comprehend the meaning of price level adjusted statements if the dollar of the most recent period is used as the base figure.⁴ In this

²Canada, Dominion Bureau of Statistics, National Income and Expenditure Accounts, Catalogue No. 13-001, Queen's Printer, Ottawa.

³A.I.C.P.A., A.R.S. No. 6, p. 109.

⁴See for example, A.I.C.P.A., A.R.S. No. 6; Ralph C. Jones, Price Level Changes and Financial Statements; and P. Mason, Price Level Adjustments and Financial Statements.

study, therefore, the conversion has been made into the 1969 year end dollar.

THE STUDY

Presented in Tables 1 and 2 are the financial statements of The Great West Steel Company as reported in historical terms. For purposes of converting these statements to dollars of equivalent purchasing power, the following are the principle index numbers and conversion factors which will be used.⁵

<u>Date</u>	<u>Price Index</u> <u>1961 = 100</u>	<u>Conversion Factors</u> <u>Dec. 31, 1969 = 1.000</u>
1964 - End	107.6	1.222 ⁶
1965 - Average	109.5	1.201
1966 - Average	114.5	1.148
1967 - Average	118.4	1.111
1968 - Average	122.6	1.073
1968 - End	125.5	1.048
1969 - Average	128.4	1.024
1969 - End	131.5	1.000

ADJUSTING THE BALANCE SHEET

The comparative balance sheets will now be adjusted to eliminate the effects of general price level changes and will be expressed in terms of the year end 1969 dollar.

⁵See Appendix A-1 for a more detailed breakdown of the gross national product implicit price deflator series used in this study.

⁶Calculated by dividing 131.5 by 107.6.

TABLE 1

GREAT WEST STEEL INDUSTRIES LTD.
COMPARATIVE BALANCE SHEETS
FOR THE YEARS ENDED 1968 AND 1969

<u>CURRENT ASSETS:</u>	<u>1968</u>	<u>1969</u>	<u>CURRENT LIABILITIES:</u>	<u>1968</u>	<u>1969</u>
Cash			Bank Advances	464,991	842,775
Marketable Securities at Cost			Acceptances - Letters of Credit	75,835	76,336
Accounts Receivable - Trade	903,337	1,626,209	Acct's. Payable & Accrued		
Less Allowance for Doubt			Liabilities	789,881	2,046,506
Accounts	1,026	2,527	Due to Affiliated Companies	1,800	
Accounts Receivable Net	902,311	1,623,682	Dividends Payable	--	--
Due from Affiliated Companies		672,071	Corporation Income Taxes	2,691	2,659
Income Taxes Recoverable		3,010	Funded Debt Maturing Within		
Inventories:			One Year	43,500	69,000
Work in Progress	680,845	2,314,481	Other Finance Contracts	9,393	1,179
Raw Materials	643,721	1,061,254	Other	--	--
Total	1,324,566	3,375,735	Total Current Liabilities	1,388,096	3,038,505
Less Progress Billings	421,527	1,830,569			
Net Inventories	903,039	1,536,166	<u>LONG TERM LIABILITIES:</u>		
Prepaid Expenses	2,515	14,174	Advances from Affiliated		
Other	--	--	Companies	166,000	166,000
Total Current Assets	1,807,865	3,849,053	Britain Mortgage/Finance		
Investments & Advances -			Contract	128,750	115,000
Other Companies	30,828		Funded Debt - IDB	220,500	179,000
Shares	8,575	925	Shareholders Loans Payable	223,361	172,971
Advances			Deferred Tax	101,790	285,592
Total	39,403	925	Total Long Term Liabilities	840,401	918,570
<u>FIXED ASSETS</u>			<u>SHAREHOLDERS EQUITY:</u>		
Property, Plant & Equipment			Capital Stock		
Prior Years	519,142	730,301	Authorized		
Current Years Addition	211,159	120,525	Common - 5000 at \$10 par		
Total	730,301	850,826	Preferred - 500 at 100 par		
Accumulated Depreciation			Issued		
Prior Years	53,747	89,736	Common	3,400	3,400
Current Years Addition	35,989	44,931	Preferred		
Total	89,736	134,667	Share Premium	4,400	4,400
Total Fixed Assets - Net	640,565	716,159	Total	7,800	7,800
<u>OTHER ASSETS:</u>			Retained Earnings		
Organization Expense	1,569	1,947	Balance Dec. 31/68/67	148,712	198,683
Other - Refundable Taxes	3,010		Net Earnings for Period	59,473	246,037
Total Assets	<u>2,492,412</u>	<u>4,568,084</u>	Capital Gains		
			Dividends - Common		1,250
			Total	208,185	445,970
			Deferred Income	47,890	157,199
			Balance as at Dec. 31/69/68	256,075	603,169
			Total Liabilities and		
			Shareholders Equity	<u>2,492,412</u>	<u>4,568,084</u>

TABLE 2

GREAT WEST STEEL INDUSTRIES LTD.
COMPARATIVE INCOME STATEMENTS
FOR THE YEAR 1969

Sales	7,854,720
Cost of Sales	<u>6,985,990</u>
Gross Margin	868,730
Other Income	<u>71,750</u>
Gross Profit	940,480
Selling and Other Expenses	
Selling Expenses	124,840
Administrative Expenses	230,246
R & D Expenses	-
General Expenses (Bad Debts)	1,501
Depreciation	<u>44,937</u>
Total	401,519
Operating Profit	538,961
Financial Expenses	
Interest Expenses - Bank	45,475
IAC & IDE--Inter Company	30,565
Other Discounts	24,116
Other Financial Charges	<u>-</u>
Total	100,156
Profit Before Income Taxes	438,805
Provision for Income Taxes	<u>8,959</u>
Profit	429,846
Deferred Corporation Income Taxes	<u>183,809</u>
Net Profit After Taxes	246,037

MONETARY ITEMS⁷

The balances in the monetary item accounts at December 31, 1969 require no adjustment since by definition they are automatically in dollars of the current period i.e. regardless of what happens to the price level this class of items remain fixed in terms of the current dollar. The balances in these accounts at the end of the previous year, however, require a restatement since the purchasing power of the dollar has declined during the year and these prior figures must be adjusted in order to make them comparable with the current figures.

The monetary items of The Great West Steel Company include accounts receivable, amounts due from affiliates, income tax recoverable, prepaid expenses, investments and advances, refundable taxes, current and long term liabilities and deferred income. The calculations for converting these year end 1968 figures into comparable current terms is:

$$M \times 1.048$$

where M is the monetary item involved and 1.048 is the factor which restates the 1968 year end figure in the monetary item account to the equivalent year end 1969 purchasing power unit.

For example, to restate accounts receivable (net) the computation is

$$902,311 \times 1.048 = 945,621$$

This means that 902,311 dollars at December 31, 1968 is the equivalent of 945,621 dollars at December 31, 1969 in terms of the goods and services which could have been purchased with this amount.

⁷A.I.C.P.A., A.R.S. No. 6, p. 138, defines a monetary item as one, "the amount of which is fixed by statute or contract, and is therefore not affected by a change in the price level."

For the most part the determination of what constitutes a monetary item is fairly easy. Clearly cash, receivables, accounts payable, bonds payable etc. fall into the category of monetary items. Items such as prepaid expenses and deferred income however are not as obvious, however, and require some elaboration. If the prepaid expense items of The Great West Steel Company had been in the form of parts or supplies as could sometimes be the case, then this category of asset would be non-monetary. Items such as prepaid utilities, rents, salaries etc. however are essentially fixed dollar amounts and may be viewed as "advance payments on liabilities which will accrue as time passes or as services are rendered. They may therefore be considered the equivalent of cash and be classed as monetary items."⁸ Since the prepaid expenses of this company are essentially in the latter form they have been treated as monetary assets and have been adjusted accordingly. The deferred income of the company has also been treated as a monetary item since it is primarily an offset to related receivables.

INVENTORIES

The company's inventory accounts are broken down into three main components, raw materials, work in progress and progress billings, all of which are stated at cost. In adjusting the historical figures the turnover of the various inventory items and their lag times in relation to the end of the year are of prime importance. The Great West Steel Company orders raw materials on the average approximately

⁸A.I.C.P.A., A.R.S., No. 6, p. 139.

two months ahead of the time of actual completion. These materials are held for one month before combining with labour and overhead to become work in progress, and on completion the finished goods are delivered to the customer. Since virtually all jobs taken on by the company are by contract, the goods are shipped as soon as completion occurs and hence there is no appreciable finished goods inventory. Billings on work completed lag slightly behind the time element of work in progress.

For purposes of adjusting the year end statements the following assumptions have been made. In the raw materials account, it may be assumed that the materials were purchased at the average of the last month of the year's price index. Work in progress may be regarded as containing materials and labour acquired during the average of the second month prior to the end of the year. Similarly progress billings can be looked on as billings on work completed during the average of the third month prior to the end of the year.⁹

The general adjustments to the inventory accounts are then carried out as follows. For example, to convert the historical work in progress figure at the end of 1969 to year end 1969 dollars,

$$2,314,481 \times 131.5/130.9^{10} = 2,325,089$$

where 2,314,481 is the reported figure in the work in progress account at December 31, 1969 and 131.5/130.9 or 1.00458 is the average of the November 1969 general price level index.

⁹It must be emphasized at this point that these assumptions are at best only rough estimates. The company has been engaging in approximately 2500 different jobs per year each of which require different completion times as well as varying requirements in materials, labour and overhead. This point will be further discussed in the section dealing with cost of goods sold.

¹⁰See Appendix A-1.

Similarly the work in progress account at the end of 1968 must be adjusted in terms of the year end 1969 dollar and this is arrived at by the following computation

$$680,845 \times 131.5/124.9^{11} = 716,929$$

FIXED ASSETS

For most long established firms adjustment of the fixed asset and particularly the depreciation accounts usually prove to be the most formidable task in preparing price level adjusted statements. To be completely accurate, each depreciable asset must be 'aged' or analyzed according to the date of acquisition. The cost is then expressed in terms of the price level in effect at the end of the current year and the depreciation for each year is either recalculated on a proportionate basis or by applying regular depreciation rates to the adjusted cost figures.

Table 3 illustrates the basic features of general price level fixed asset and depreciation adjustments. Assume the following price levels:

January 1, 1960	90
January 1, 1968	150
June 1, 1969	170
December 31, 1969	- 180

The revised balance sheet would now show fixed assets of \$233,175 and accumulated depreciation of \$40,984. Again, it must be cautioned that the revised figures do not, except by coincidence, reflect replacement values. The \$130,000 representing different years historical costs,

¹¹See Appendix A-1.

TABLE 3

DEMONSTRATION OF GENERAL PRICE LEVEL ADJUSTMENTS FOR FIXED ASSETS

<u>Asset</u>	<u>Date of Acquisition</u>	<u>Depr'n Rate</u>	<u>Acquisition Cost</u>	<u>Conversion Factor</u>	<u>Adjusted Cost</u>	<u>1969 Depr'n</u>		<u>Accumulated Depr'n</u>	
						<u>Book Figure</u>	<u>Adjusted Figure</u>	<u>Book Figure</u>	<u>Adjusted Figure</u>
Building	1/1/1960	2%	100,000	180/90	200,000	2,000	4,000	20,000	40,000
				or					
				2.000					
Building	1/1/1968	2%	10,000	180/150	12,000	200	240	400	480
				or					
				1.200					
Equipment	6/1/1969	5%	20,000	180/170	21,175	500	504	500	504
				or					
				1.0588					
			130,000		233,175	2,700	4,744	20,900	40,984

for example, must be looked on as being the equivalent of \$233,175 at year end 1969 in terms of the goods and services which could be purchased by those amounts.

In the case of The Great West Steel Company the adjustment of the fixed asset accounts however did not prove to be too arduous a task. The reason for this is the fact that the company is relatively new and adjustments had only to be rolled forward from 1965, the first year of operations. In addition, the number of retirements were negligible. Furthermore the various fixed assets were assumed to have been purchased at the average of years prices, which in fact bore a close relationship to the actual purchasing pattern of the company. Appendix B contains an example of the type of procedure used to restate Great West Steel's fixed assets to current purchasing power equivalents of year end 1969.

ORGANIZATIONAL EXPENSE

Organizational expense was incurred over a number of years and was adjusted accordingly.

SHAREHOLDERS EQUITY

The common stock with its premium was issued at the opening of business in December 1964. The \$7,800 paid in at that time is the equivalent of \$9,530 ($7,800 \times 1.222$) in terms of year end 1969 dollars and this revised amount will appear in the adjusted balance sheet. Since there has been no additional stock issues during the 1968-69 period the figure \$9,530 appearing under the 1968 column will be the same as the figure in the 1969 column as both figures are presented in terms of the current dollar.

RETAINED EARNINGS

The retained earnings account represents the accumulation since 1965 of the undistributed earnings of the firm. While it would be possible to analyze the amount applicable to each year of operations, this would require a restatement of all items back to 1965 in order to obtain the gains or losses in purchasing power due to inflation. The accumulated adjusted retained earnings figure can be arrived at without such an analysis by subtracting the sum of the adjusted assets from the adjusted liabilities and other shareholders equity accounts. The residual derived from this calculation when combined with the adjusted capital stock and dividend accounts measures the amount of the shareholder's interest in the company after all effects of price movements of the currency have been taken into consideration.

THE ADJUSTED BALANCE SHEET

The comparative balance sheets, after all conversions to the year end 1969 dollar have been made, are shown as Table 4.

INTERPRETATION OF THE BALANCE SHEET

The total of the adjusted shareholder's equity has increased substantially over the unadjusted figures. The adjusted retained earnings figure at year end 1969 represents \$526,292 of purchasing power where the historical statement reports a figure of 445,970 mixed dollars. This can be interpreted to mean that there is a measurement deficiency in the reported figure of approximately 15% ($80,322/526,292$).

CURRENT ASSETS:	As Reported		G.P.L. Adjusted (in terms of year end 1969 dollars)	
	1968	1969	1968	1969
Cash				
Marketable Securities at Cost				
Accounts Receivable - Trade	903,337	1,626,209	946,697	1,626,209
Less Allowance for Doubt Accounts	1,026	2,527	1,075	2,527
Accounts Receivable Net	902,311	1,623,682	945,621	1,623,682
Due from Affiliated Companies		672,071		672,071
Income Taxes Recoverable		3,010		3,010
Inventories:				
Work in Progress	680,845	2,314,481	716,929	2,325,089
Raw Materials	643,721	1,061,254	675,907	1,062,870
Total	1,324,566	3,375,735	1,392,836	3,387,959
Less Progress Billings	421,527	1,839,569	446,818	1,857,936
Net Inventories	903,039	1,536,166	946,018	1,530,023
Prepaid Expenses	2,515	14,124	2,515	14,124
Other	--	--	--	--
Total Current Assets	1,807,865	3,849,053	1,894,154	3,842,910
Investments & Advances -				
Other Companies	30,828		32,307	
Shares	8,575	925	8,986	925
Advances				
Total	39,403	925	41,293	925
FIXED ASSETS				
Property, Plant & Equipment				
Prior Years	519,142	730,301	607,832	834,403
Current Years Addition	211,159	120,525	226,571	123,417
Total	730,301	850,826	834,403	957,820
Accumulated Depreciation				
Prior Years	53,747	89,736	63,143	103,868
Current Years Addition	35,989	44,931	40,725	49,916
Total	89,736	134,667	103,868	153,784
Total Fixed Assets - Net	640,565	716,159	730,535	804,036
OTHER ASSETS:				
Organization Expense	1,569	1,947	1,838	2,225
Other - Refundable Taxes	3,010		3,154	
Total Assets	2,492,412	4,568,084	2,670,974	4,650,096
CURRENT LIABILITIES:				
Bank Advances	464,991	842,775	487,310	842,775
Acceptances - Letters of Credit	75,835	76,386	79,475	76,386
Acct's. Payable & Accrued Liabilities	789,881	2,046,506	827,795	2,046,506
Due to Affiliated Companies	1,800		1,886	
Dividends Payable	--	--		
Corporation Income Taxes	2,691	2,659	2,820	2,659
Funded Debt Maturing Within One Year	43,500	69,000	45,588	69,000
Other Finance Contracts	9,398	1,179	9,489	1,179
Other	--	--	--	--
Total Current Liabilities	1,388,096	3,038,505	1,454,723	3,038,505
LONG TERM LIABILITIES:				
Advances from Affiliated Companies	166,000	166,000	173,968	166,000
Britain Mortgage/Finance Contract	128,750	115,000	134,940	115,000
Funded Debt - IDB	220,500	179,000	231,084	179,000
Shareholders Loans Payable	223,361	172,971	234,092	172,971
Deferred Tax	101,790	285,599	106,675	285,599
Total Long Term Liabilities	840,401	918,570	880,759	918,570
SHAREHOLDERS EQUITY:				
Capital Stock				
Authorized				
Common - 5000 at \$10 par				
Preferred - 500 at 100 par				
Issued				
Common	3,400	3,400	4,154	4,154
Preferred				
Share Premium	4,400	4,400	5,376	5,376
Total	7,800	7,800	9,530	9,530
Retained Earnings				
Balance Dec. 31/68/67	148,712	198,683		275,774
Net Earnings for Period	59,473	246,037		249,268
Capital Gains				
Dividends - Common		1,250		1,250
Total	208,185	445,970	275,774	526,292
Deferred Income	47,890	151,199	50,188	157,199
Balance as at Dec. 31/69/68	256,075	603,169	325,962	683,491
Total Liabilities and Shareholders Equity	2,492,412	4,568,084	2,670,974	4,650,096

ADJUSTING THE INCOME STATEMENT SALES

The pattern of Great West Steel sales showed a steady upward trend throughout the year. To analyze the sales in terms of the current year end dollar, quarterly indexes were used as follows:

<u>Quarter in which Sales Occurred</u>	<u>Sales As Reported</u>	<u>Conversion¹¹ Factor</u>	<u>Adjusted Amounts</u>
1	1,504,706	1.044	1,570,913
2	1,772,235	1.027	1,820,085
3	1,932,394	1.021	1,972,974
4	<u>2,645,385</u>	1.004	<u>2,655,966</u>
	7,854,720		8,019,938

As mentioned previously, this computation simply means that in terms of purchasing power received from customers, \$7,854,720 worth of sales made during the year is equivalent in purchasing power to \$8,019,938 of sales made at December 31, 1969.

COST OF GOODS SOLD

The derivation of the cost of the goods sold figure will be explained once the discussion of the other elements in the income statement are complete.

OTHER INCOME

Approximately \$2,500 of 'other income' was received each month with the exception of December when the remainder of the \$71,750 was received. These amounts were adjusted accordingly.

SELLING AND OTHER EXPENSES SELLING ADMINISTRATIVE AND GENERAL EXPENSES

This portion of selling and other expenses were incurred in

¹¹See Appendix A-1.

amounts proportional to sales and were also adjusted on a quarterly basis.

SELLING AND OTHER EXPENSES DEPRECIATION

As mentioned in the previous section under 'Fixed Assets', derivation of the adjusted depreciation figure can be arrived at either by calculating the original value of the asset in uniform dollars and applying the existing depreciation rate, or by adjusting the depreciation calculated on a historical dollar basis to one of current dollars. The latter method has been chosen on this study. Appendix B illustrates the computation of the adjusted depreciation figure for the year 1969 in terms of year end dollars.

FINANCIAL EXPENSES

The items listed under 'Financial Expenses' were also adjusted quarterly to account for the purchasing power changes in the dollar which occurred during the year.

PROVISION FOR INCOME TAX AND DEFERRED CORPORATION INCOME TAX

The provision for income tax account was adjusted according to the dates at which the amounts were recorded. In the case of this company those dates were May and December and were revised accordingly. The deferred corporation income tax account was a year end figure and thus already in current dollars.

It is important to note that the income tax figures are simply a restatement of the historical amounts and are not calculated on the basis of the adjusted net income before taxes figure.

NET PROFIT AND NET INFLATION GAIN

The final income figure is derived from the adjusted 1969 year end balance sheet and amounts to \$249,268. This figure, however, represents the results from both operations and purchasing power gains or losses and can be further broken down to show the magnitude and direction of these two different processes.

PURCHASING POWER GAINS AND LOSSES
MONETARY ITEMS

During inflation, a given amount of money can be used to buy fewer and fewer goods. Consequently, holders of monetary assets lose general purchasing power during periods of price level increases. Similarly a fixed amount of money payable in the future becomes less burdensome in times of inflation because it is payable in dollars of reduced purchasing power. Therefore those who have an excess of monetary assets over monetary liabilities during periods of inflation will experience a general price level loss while general price level gains will accrue to those who hold net monetary liabilities.

The Great West Steel Company is an example of a firm which has had an excess of liabilities over monetary assets and hence shows a large purchasing power gain. This gain stems from the fact that although the dollar value at which a monetary item is stated on the reports does not change, the value of the dollar in which it is measured does change.

The following is a simplified example of how purchasing power gains and/or losses on monetary items are calculated. The actual computation of the gains incurred by the company on its short and long

term monetary items is illustrated in Appendix C.

Assume the following:

<u>Time</u>	<u>Price Level</u>	<u>Conversion Factor</u>
Beginning of year	100	1.100
Average of year	105	1.048
End of year	110	1.000

NET CURRENT MONETARY POSITION AS REPORTED

	Dec. 31, 19x1	Dec. 31, 19x2
Cash	20,000	30,000
Receivables	<u>10,000</u>	<u>15,000</u>
	30,000	45,000
Liabilities	<u>10,000</u>	<u>10,000</u>
	20,000	35,000

Also assume that the increase in the net position took place at the average of the year dollar.

The \$20,000 net amount at the beginning of the year suffers the full 10% drop in purchasing power or a loss of 2,000 dollars ($1.100 - 1.000 \times 20,000$). The increase in the net position of \$15,000 assumed to have taken place at the average of the year dollar is subject to a purchasing power loss of \$720.00 ($1.048 - 1.000 \times 15,000$). The total purchasing power loss then on the net current monetary position is \$2,000 + \$720 or \$2,720.00

PURCHASING POWER GAINS AND LOSSES NON-MONETARY ITEMS

Inventories, property, plant and equipment and capital stock are examples of non-monetary items, holders of which do not gain or lose general purchasing power simply as a result of general price level changes. If the price of a non-monetary item changes at the same rate as the general price level, no gain or loss of general purchasing power

results. Holders of non-monetary assets and liabilities, however, will gain or lose general purchasing power if the specific price of the item owned rises or falls faster or slower than the change in the general price level. No gains or losses on monetary items were recognized in this case since this first adjustment is simply interested in restating all accounts in terms of equivalent dollars of purchasing power and not to reflect specific changes.

COST OF GOODS SOLD

Normally of course, the adjusted net income figure is calculated by subtracting all adjusted expenses from their related revenues. In this study however, it was impossible within the time available to arrive at a revised cost of goods sold figure. The figure which is illustrated on the revised income statement is a residual which was computed by taking the adjusted net income figure from the 1969 revised balance sheet working back from this figure to obtain the gross margin and subtracting this from the adjusted sales.

The Great West Steel Company operates on a job order basis and uses a perpetual type inventory system. It is estimated that there are an average of over 200 different jobs in process each month. Unfortunately records pertaining to purchases of materials, time slips for wage rates and overhead allocations were extremely difficult to obtain and would have taken a disproportionate amount of time to analyze. It was felt that in light of these circumstances it would be most expedient to calculate a residual figure.

TABLE 5

GREAT WEST STEEL INDUSTRIES LTD.
COMPARATIVE INCOME STATEMENTS
FOR THE YEAR 1969

	<u>Historical</u>	<u>G.P.L.</u> <u>Adjusted</u>	<u>Difference</u>	<u>% Difference</u>
	(a)	(b)	(c)	(d)
	As reported	Adjusted in year end \$	(b) - (a)	c/a
Sales	7,854,720	8,019,938	165,218	2.10
Cost of Sales	<u>6,985,990</u>	<u>7,215,172</u>	<u>229,182</u>	<u>3.28</u>
Gross Margin	868,730	804,766	63,964	
Other Income	<u>71,750</u>	<u>73,037</u>	<u>1,287</u>	1.79
Gross Profit	940,480	877,803	62,677	
Selling and Other Expenses				
Selling Expenses	124,840	127,984	3,144	2.51
Administrative Expenses	230,246	235,312	5,066	2.20
R & D Expenses	-	-		
General Expenses (Bad Debts)	1,501	1,537	36	2.39
Depreciation	<u>44,937</u>	<u>49,916</u>	<u>4,979</u>	11.07
Total	401,519	414,749	13,225	
Operating Profit	538,961	463,054	75,902	
Financial Expenses				
Interest Expenses-Bank	45,475	46,439	964	2.11
IAC & IDE-Inter Company	30,565	31,286	721	2.35
Other Discounts	24,116	24,513	397	1.64
Other Financial Charges	-	-	-	
Total	100,156	102,238	2,087	
Profit Before Income Taxes	438,805	351,659	77,989	
Provision for Income Taxes	<u>8,959</u>	<u>9,157</u>	198	2.21
Profit	429,846	351,659	78,182	
Deferred Corporation Income Taxes	<u>183,809</u>	<u>183,809</u>	-	-
Net Profit After Taxes	246,037	167,850	78,182	
Inflation Gains or Losses				
Gain (Loss) on Short Term Monetary Items		42,607		
Gain (Loss) on Long Term Debt		38,811		
Gain (Loss) on Non- Monetary Assets		-		
Net Profit & Net Inflation Gain		<u>249,268</u>		

INTERPRETATION OF THE INCOME STATEMENT

The most important changes in the adjusted income statement as shown in Table 5 are found in the cost of sales and depreciation accounts. For the most part all other transactions affecting income occurred during the year but depreciation and in part, cost of sales, represent expenditures in dollars or purchasing power of former periods. Thus the \$229,182 difference in the cost of sales and the \$4,979 difference in depreciation measure in terms of the year end dollar, the deficiencies in the recorded amounts due to changes in the price level. These amount to 3.28% in cost of goods sold and 11.07% in the case of depreciation.

It is interesting to note that when the adjustments are made, net profit after tax is only 68% of the reported figure. The inclusion of the gains on net monetary liabilities however results in an adjusted statement 2.4% larger than the historical amount.

II. GENERAL PRICE LEVEL ADJUSTED STATEMENTS INCLUDING
SPECIFIC ADJUSTMENTS FOR FIXED ASSETS AND INVENTORIES

As restatements for general price level changes do not attempt to deal with specific price movements, so adjustments for specific price changes do not deal with inflation as such. As pointed out in Chapter III, arguments are often waged as to the relative merits of an index of general price level and specific price indexes in adjusting financial statements for the effects of inflation. It is only the general price level index that measures the effect of inflation or deflation. The use of specific price indexes involves the adoption of the replacement cost principle of valuation, the results of which may be either higher or lower than those obtained with the use of a general

price index. The use of one however, does not preclude the use of the other and hence both may be dealt with simultaneously. The revised financial statements which follow incorporate these two movements of prices. The general price level index is used to measure the effect of inflation on the monetary assets, liabilities and capital accounts while specific indexes and appraisal values are used to depict approximate replacement costs of the fixed asset and inventory items. The income statement will be adjusted as before with the exception that the cost of goods sold and depreciation accounts reflect current costs. Since the study is now dealing with current values at a given period and not simply a restatement of historical costs in terms of the prevailing dollar, the adjusted 1968 statement is not 'rolled forward' into year end 1969 as it was in the previous illustration but is presented in dollars current at the end of 1968.

ADJUSTING THE BALANCE SHEET

The comparative balance sheets will now be adjusted in terms of the current dollars of 1968 and 1969.

MONETARY ITEMS

Since the balances in the monetary accounts are already in the current dollars of the respective years, no adjustment is required to either year's figure.

INVENTORIES

In order to properly adjust the company's inventory accounts to current values at the end of each of the two years, specific indexes reflecting the movement of Great West Steel's particular types of

inventory were needed. It was agreed by the members of the firm that the movements in the 'Iron and Steel Mills' price indexes¹² published by the Dominion Bureau of Statistics best reflected those items.

Appendix A-2 illustrates these indexes and their conversion factors.

The procedure is identical to that of the previous adjustment with the exception that different indicators were used and the 1968 totals were not rolled forward to 1969. For example,

1968 Work in Progress

$$680,845 \times 1.002 = 682,207$$

where 680,845 is the figure in the work in progress account and
1.002 is the average of the Nov. 1968 price index in relation to the year end 1968 dollar for 'iron and steel mills'.

FIXED ASSETS

For purposes of the study, the fixed assets of The Great West Steel Company were broken down into the following major classes:

Machinery and Equipment	Furniture and Fixtures
Buildings	Trucks
Iron and Steel Items	Land

Once the allotment of the various fixed assets to each of these classes had been agreed to, the index which best represented the movement of the particular class of asset was chosen. This index classification is illustrated below:

¹²Canada, Dominion Bureau of Statistics, Prices and Price Indexes, Table 2, Catalogue No. 62-002, Queen's Printer, Ottawa.

<u>Class of Asset</u>	<u>Price Index Used</u>
Machinery and Equipment	Business - Machinery and Equipment ¹³
Buildings	Non-Residential Buildings-Total Index ¹⁴
Furniture and Fixtures	Office Furniture and Fixtures ¹⁵
Trucks	Trucks - 6000 lbs. or less ¹⁶
Iron and Steel Items	Iron and Steel Mills ¹⁷
Land	Appraised Value ¹⁸

Appendices A-3 and A-4 indicate the price series for the above accounts while the actual adjustments required to bring the fixed assets up to current value are exhibited in Appendix D.

Accumulated depreciation was calculated in the same manner as in the previous adjustment - by a restatement of the historical amounts, except in this case each class of asset was adjusted by its own particular index. These adjustments are also exhibited in Appendix D.

ORGANIZATIONAL EXPENSE

This item is restated in exactly the same manner as before with the exception that the restated value is in terms of both year end 1968 and 1969.

¹³Canada, Dominion Bureau of Statistics, National Income and Expenditure Accounts, Catalogue No. 13-001, Table 21, item 14, Queen's Printer, Ottawa.

¹⁴Canada, Dominion Bureau of Statistics, Prices and Price Indexes, Catalogue No. 62-002, Table 7, Queen's Printer, Ottawa.

¹⁵Ibid., Table 2, reference no. 09 2640.

¹⁶Ibid., Table 2, reference no. 15 3230 011.

¹⁷Ibid., Table 2, reference no. 12 2910.

¹⁸Value of land appraised by President.

SHAREHOLDER'S EQUITY

Since this adjustment is dealing with a general purchasing power capital maintenance concept despite the evaluations to current replacement costs in the fixed asset and inventory accounts, the paid in capital of 7,800 at the end of 1964 is adjusted via a general price level index. To restate the accounts to year end 1968 and 1969 the following computations are used:

$$\begin{aligned} 1968 &- 7,800 \times 1.165^{19} = 9,087 \\ 1969 &- 7,800 \times 1.222^{20} = 9,530 \end{aligned}$$

RETAINED EARNINGS

As in the previous case the retained earnings figure in the 1968 revised balance sheet is arrived at by subtracting the sum of the adjusted assets from the adjusted liabilities and other shareholder equity accounts. This figure amounts to \$383,202 and is shown in the adjusted 1968 balance sheet. The figure for the 1969 balance sheet is calculated in the same manner except that the retained earnings figure from 1968, which is carried forward to 1969, is adjusted to make it comparable with the other items on the balance sheet, all of which have been restated in terms of their value or purchasing power equivalents at the end of 1969. This adjustment is:

$$383,202 \times 1.048 = 401,596$$

where 383,202 is the balance in the retained earnings account as of Dec. 31, 1968 and 1.048 is the factor required to adjust the 1968 figure to the equivalent purchasing power of the 1969 year end dollar.

¹⁹See Appendix A.

²⁰See Appendix A.

THE ADJUSTED BALANCE SHEET

The adjusted balance sheets, after all conversions have been made to the respective year end price levels are exhibited in Table 6.

INTERPRETATION OF THE BALANCE SHEET

If it can be assumed that the values shown on the revised balance sheet represent current market values, then the following interpretation as to the meaning of this statement can be made.

If the company were to be liquidated and the shareholder's received the net proceeds, they would in fact receive, in terms of year end dollars, \$769,028 more than they had originally invested. Since the reported figure shows an amount of \$445,970, the revised balance sheet would indicate that the shareholders are in fact \$323,058 ($\$769,028 - \$445,970$) better off than is denoted by the historical figure. This represents a deficiency of the reported figure of approximately 42% ($\$323,058/\$769,028$).

ADJUSTING THE INCOME STATEMENT SALES

The adjustment of the income statement, with the exception of cost of goods sold, depreciation and gains and losses on non-monetary items, is carried out in exactly the same manner as in the previous adjustment. This includes sales, other income, selling and other expenses (with the exception of depreciation), financial expenses, taxes and gains and losses on monetary items.

COST OF GOODS

The derivation of this figure is explained following the discussion on the other income components.

CURRENT ASSETS:	As Reported		Current Cost	
	1968	1969	1968	1969
Cash				
Marketable Securities at Cost				
Accounts Receivable - Trade	903,337	1,626,209	903,037	1,626,209
Less Allowance for Doubt Accounts	1,026	2,527	1,026	2,527
Accounts Receivable Net	902,311	1,623,682	902,311	1,623,682
Due from Affiliated Companies		672,071		672,071
Income Taxes Recoverable		3,010		3,010
Inventories:				
Work in Progress	680,845	2,314,481	682,207	2,346,883
Raw Materials	643,721	1,061,254	645,008	1,064,437
Total	1,324,566	3,375,735	1,327,215	3,411,320
Less Progress Billings	421,527	1,839,569	422,791	1,908,736
Net Inventories	903,039	1,536,166	904,424	1,502,584
Prepaid Expenses	2,515	14,124	2,515	14,124
Other	--	--		
Total Current Assets	1,807,865	3,849,053	1,809,250	3,815,471
Investments & Advances -				
Other Companies	30,828		30,828	
Shares	8,575	925	8,575	925
Advances				
Total	39,403	925	39,403	925
FIXED ASSETS:				
Property, Plant & Equipment				
Prior Years	519,142	730,301		1,095,752 ⁽¹⁾
Current Years Additions	211,159	120,525		120,332
Total	730,301	850,826	906,969	1,216,084
Accumulated Depreciation				
Prior Years	53,747	89,736		95,167
Current Years Additions	35,989	44,931		46,706
Total	89,736	134,667	91,709	141,873
Total Fixed Assets - Net	640,565	716,159	815,260	1,074,211
OTHER ASSETS:				
Organization Expense	1,569	1,947	1,753	2,225
Other - Refundable Taxes	3,010		3,010	
Total Assets	2,492,412	4,568,084	2,668,676	4,892,832
CURRENT LIABILITIES:				
Bank Advances	464,991	842,775	464,991	842,775
Acceptances - Letters of Credit	75,835	76,386	75,835	76,386
Acct's. Payable & Accrued Liabilities	789,881	2,046,506	789,881	2,046,506
Due to Affiliated Companies	1,800		1,800	
Dividends Payable	--	--	--	--
Corporation Income Taxes	2,691	2,659	2,691	2,659
Funded Debt Maturing Within One Year	43,500	69,000	43,500	69,000
Other Finance Contracts	9,398	1,179	9,398	1,179
Other	--	--	--	--
Total Current Liabilities	1,388,096	3,038,505	1,388,096	3,038,505
LONG TERM LIABILITIES:				
Advances from Affiliated Companies	166,000	166,000	166,000	166,000
Britain Mortgage/Finance Contract	128,750	115,000	128,750	115,000
Funded Debt - IDB	220,500	179,000	220,500	179,000
Shareholders Loans Payable	223,361	172,971	223,361	172,971
Deferred Tax	101,790	285,599	101,790	285,599
Total Long Term Liabilities	840,401	918,570	840,401	918,570
SHAREHOLDERS EQUITY:				
Capital Stock				
Authorized				
Common - 5000 at \$10 par				
Preferred - 500 at 100 par				
Issued				
Common	3,400	3,400	3,961	4,154 ⁽²⁾
Preferred				
Share Premium	4,400	4,400	5,126	5,376
Total	7,800	7,800	9,087	9,530
Retained Earnings				
Balance Dec. 31/68/67	148,712	198,683		401,596 ⁽³⁾
Net Earnings for Period	59,473	246,037		366,182
Capital Gains				
Dividends - Common		1,250		1,250
Total	208,185	445,970	383,202	769,028
Deferred Income	47,800	157,199	47,800	157,199
Balance as at Dec. 31/69/68	256,075	603,169	431,092	926,227
Total Liabilities and				

DEPRECIATION

The calculation of the 1969 depreciation figure is shown in conjunction with the fixed asset conversion and is shown in Appendix D. It is interesting to note that although the current cost of the total fixed assets (\$1,216,084) is markedly higher than the same assets adjusted in terms of uniform purchasing power (\$957,820), the depreciation figure for the year is \$3,210 less. This is because the specific indexes of the depreciable assets did not, as a whole, keep pace with the increase in the general price level. The one non-depreciable fixed asset, land, however was appraised at over four times its original cost and it alone accounts for most of the difference between the two price movements.

NET PROFIT AND NET INFLATION GAIN

The final income figure for the year has been derived from the adjusted 1969 balance sheet and amounts to \$366,182. This figure however represents the results from operations, purchasing power gains on monetary items and holding gains on non-monetary items, all of which may be further analyzed to determine the magnitude of each. Since the calculation of purchasing power gains is the same as in the previous illustration, the following discussion will be centered around holding gains and losses on the non-monetary assets of the company.

GAINS AND LOSSES ON NON-MONETARY ITEMS

When an analysis dealing with the movements of two different price indexes is employed, a different type of situation emerges involving the recognition of holding gains and losses on non-monetary assets. For

example, assume an inventory item is purchased for \$100 when the general price level is at 100. If the current replacement cost of this item rises to 120 before it is sold while the general price level rises only to 110, then a holding profit of 10 dollars is recognized. If the item is then sold for \$150 there will be a further profit of \$30. Under conventional accounting practice a profit of \$50 would be shown at the time of sale. When simultaneous use of general price levels and specific price movements are made, however, the total profit figure is \$40, \$10 of which is through holding and \$30 through sales. The difference of 10 dollars (\$50-\$40) represents a fictional gain in the sense that the general price level also rose from 100 to 110.

To the extent that holding profits and losses are recognized before the asset is sold, therefore, there is an earlier recognition of these profits or losses than in the usual concept of income arrived at with the use of a general index.

In the case of The Great West Steel Company the replacement cost or current value of the total assets increased faster than the general price level and the company was able to show a gain on its non-monetary assets of \$169,644. As illustrated in Appendices E and F most of this gain is attributable to the increase in the land and inventory accounts. The remainder of the company's assets, with the exception of machinery and equipment which had a holding loss of \$7,784 did not vary greatly from the general price level movements.

The derivation of holding gains and losses on the inventory items was more complex than in the case of the other fixed assets, due to its rather rapid turnover. The computations carried out are illustrated

in Appendix F but a brief description of the method used is offered below.

As previously explained, it was assumed that the holdings of raw materials at the end of any one month were purchased at the average of the price level of that month. Similarly, work in progress at the end of a month was assumed to have occurred at the average of the previous month's prices and progress billings at the average of the month's prices prior to that.

For example, the raw materials on hand at the end of January were assumed to have been purchased at the average of that month's price index and were thus in the current dollar of the month of January. Work in progress shown at the end of January was assumed to have taken place during the average of December and was therefore adjusted to the average of January's price index and so on. Therefore the following situation existed:

Work in Progress:	$628,902 \times \frac{103.6}{103.2} = 631,339$
+Raw Materials:	$642,172 \times \frac{103.6}{103.6} = 642,172$
-Progress Billings:	$352,681 \times \frac{103.6}{103.2} = 354,047$
	<hr/>
	919,464

where 628,902; 642,172 and 352,681 are the January balances in the above three accounts and 103.6; 103.2 and 103.2 are the prices prevailing at the average of January, December and November respectively and \$919,464 is the current cost of the combined three accounts at the average of January's prices.

The \$919,464 was assumed to be held for a full month during which time the changes in the specific price level as represented by the 'iron

and steel mills' indicator and the general price level were noted. For example, the S.P.L. increased from 103.6 to 103.7 during January and February and a gain over the restated cost of \$919 ($\$919,464 \times 103.7 - 103.6$) is declared. This gain is then adjusted to express it in year end dollars which in this case amounts to \$989 ($\$919 \times 111.55/103.6$).²¹ During this time the general price level also rose however and an adjusted gain of \$3852 was noted. This is calculated as below.

$$919,464 (125.9-125.5) \times 131.5/125.5 = 3852$$

where

125.9 and 125.5 are the average of the general price level indexes in January and February and 131.5 is the year end index figure.

Thus, during this period a holding loss of \$2,863 ($\$3,852 - \989) was obtained.

COST OF GOODS SOLD

Due to the problem in obtaining actual records of purchases, wage rates and overhead allocations, the cost of goods sold figure could not be directly calculated and was thus obtained as a residual.

THE ADJUSTED INCOME STATEMENT

The revised income statement reflecting the adjustments which have been made in the various income accounts is shown as Table 7. The statement has been compared to the previous general price level adjusted statements in order to emphasize the key differences, which exist between current cost valuation and adjustments simply in terms of uniform dollars.

²¹111.55 is the year end price index in 'Iron and Mills'.

TABLE 7

GREAT WEST STEEL INDUSTRIES LTD.
COMPARATIVE INCOME STATEMENTS
FOR THE YEAR 1969

	Historical (a)	G.P.L. Adjusted (b)	Current Cost (c)	Differences (d)
	As reported	Adjusted in year \$	Adjusted in year end. \$	(c) - (b)
Sales	7,854,720	8,019,938	8,019,938	-
Cost of Sales	6,985,990	7,215,172	7,271,112	55,940
Gross Margin	868,730	804,766	748,826	55,940
Other Income	71,750	73,037	73,037	-
Gross Profit	940,480	877,803	821,863	55,940
Selling and Other Expenses				
Selling Expenses	124,840	127,984	127,984	-
Administrative Expenses	230,246	235,312	235,312	-
R & D Expenses	-	-	-	-
General Expenses (Bad Debts)	1,501	1,537	1,537	-
Depreciation	44,937	49,916	46,706	(3,210)
Total	401,519	414,749	411,539	(3,210)
Operating Profit	538,961	463,054	410,324	52,730
Financial Expenses				
Interest Expenses-Bank	45,475	46,439	46,439	-
IAC & IDE-Inter Company	30,565	31,286	31,286	-
Other Discounts	24,116	24,513	24,513	-
Other Financial Charges	-	-	-	-
Total	100,156	102,238	102,238	-
Profit Before Income Taxes	438,805	360,816	308,086	52,730
Provision for Income Taxes	8,959	9,157	9,157	-
Profit	429,846	351,659	298,929	52,730
Deferred Corporation Income Taxes	183,809	183,809	183,809	-
Net Profit After Taxes	246,037	167,850	115,120	52,730
Inflation Gains or Losses				
Gain (Loss) on Short Term Monetary Items		42,607	42,607	
Gain (Loss) on Long Term Debt		38,811	38,811	
Gain (Loss) on Non- Monetary Assets		-	169,644	(169,644)
Net Profit & Net Inflation Gain		249,268	366,182	(116,914)

INTERPRETATION OF THE INCOME STATEMENT

Columns (a) and (b) have been taken directly from Table 5.

In column (c), the cost of goods sold and depreciation figures represent close approximations to current replacement cost. In addition the incremental movements between the specific price level indexes and the general price level index with regard to holding fixed asset and inventory items has been observed, the results of which are shown as gains on non-monetary items.

By introducing the element of current costs into the analysis, the net profit after taxes figure is found to be only 47% of the reported amount (\$115,120/\$46,037). With the inclusion of the inflation gains however, the reported income was found to be understated by \$120,145 (\$366,182-\$246,037) or by 33% of the adjusted figure.

The movement in the specific prices of the depreciable fixed assets has clearly not kept up with the movement in the general price level as evidenced by the fact that the current cost depreciation figure is \$3,210 less than the charge against the general price level adjusted statement. To the extent that a large proportion of the company's resources in depreciable fixed assets is confined to Machinery and Equipment, whose index has shown the slowest advance of any of the price indicators, this difference in depreciation is to be expected.

On the other hand, the current cost of goods sold figure is higher than the comparative general price level adjusted figure. This is also to be expected in view of the fact that the specific index 'Iron and Steel Mills' advanced more rapidly during the year than that of the general price level.

SUMMARY

The major results of this study are summarized in Tables 8, 9, 10 and 11.

TABLE 8

Relationship of various income components as a % of sales

	<u>As Reported</u>	<u>G.P.L. Adjusted</u>	<u>Current Cost</u>
Gross Margin	11.06%	10.03%	9.34%
Net Income after Taxes	3.13%	2.09%	1.43%
Net Profit + Net Inflation Gain	3.13%	3.11%	4.57%

TABLE 9

Relationship of various income components as a % of the reported figure

	<u>As Reported</u>	<u>G.P.L. Adjusted</u>	<u>Current Cost</u>
Cost of Sales	100%	103.28%	104.08%
Depreciation	100%	111.07%	103.93%
Net Income after Taxes	100%	68.22%	46.78%
Net Profit and Net Inflation Gain	100%	101.31%	148.83%

TABLE 10
RETURN ON INVESTMENT

	<u>As Reported</u>	<u>G.P.L. Adjusted</u>	<u>Current Cost</u>
Rate of return on average gross assets available	6.75%	6.58%	9.39%
Rate of return on average stockholder's equity	75.22%	62.15%	63.56%

TABLE 11
EFFECTIVE FEDERAL INCOME TAX RATES²²

	<u>As Reported</u>	<u>G.P.L. Adjusted</u>	<u>Current Cost</u>
Effective Federal Income Tax Rate	43.93%	53.48%	62.63%

CONCLUSION

This chapter has investigated the effects of general and specific price changes on the operations of The Great West Steel Company.

By taking into consideration general price level changes, it was found that although the final income figure was similar to that reported, the individual components in the statement were markedly different. Thus the adjusted net income after taxes figure was only 65% of the reported amount. Purchasing power gains, undisclosed in the historical statements, amounted to \$81,418 and represented 32% of the final adjusted income figure.

²²Effective rates are found by dividing the tax expense by the net profit before taxes.

When specific price changes in the fixed asset and inventory accounts were introduced, little resemblance to the reported figures remained. Operating income after taxes was reduced to 45% of the reported amount. This was mainly due to the increase in the replacement cost of inventories. With the change in recognition principle, the final adjusted profit figure contained an additional income component, holding gains on non-monetary assets. This gain, largely due to the holding of land, represented 46% of the adjusted net income figure.

In conclusion, the conventional income statement and balance sheets suffer from the lack of comparability of their various components. Cash, receivables and unpaid liabilities are expressed in current terms but non-monetary items such as inventories and plant assets are collections of non-comparable units which when adjusted either in terms of current dollars or current values may greatly undermine the value of the reported figures. In addition purchasing power gains and losses on the net monetary position are not revealed.

Unless these limitations of conventional accounting are recognized and taken into account, it is difficult to visualize how management can make properly informed decisions as to dividend policy, price policy and expansion programs. These matters and their relation to price changes will be the subject of the next chapter.

APPENDIX A-1

GROSS NATIONAL PRODUCT IMPLICIT PRICE DEFLATOR

GENERAL PRICE LEVEL ADJUSTMENT - 1969

<u>YEAR</u>	<u>DEFLATOR</u> <u>1961=100</u>	<u>CONVERSION FACTOR</u> <u>IN TERMS OF YEAR END</u>	
		<u>1968</u>	<u>1969</u>
1964 - End	107.6	1.165	1.222
1965 - Avg.	109.5	1.145	1.201
1966 - Avg.	114.5	1.095	1.148
1967 - Avg.	118.4	1.059	1.111
1968 - Avg.	122.6	1.023	1.073
1968 - 1st. quarter avg.	121.1	1.035	1.086
2nd. quarter avg.	121.7	1.030	1.081
3rd. quarter avg.	122.7	1.022	1.072
4th. quarter avg.	124.9	1.004	1.053
Dec. avg.	125.2	1.000	
End	125.4	1.000	1.048
1969 - Avg.	128.4		1.024
1st. quarter avg.	125.9		1.044
2nd. quarter avg.	128.1		1.027
3rd. quarter avg.	128.2		1.021
4th. quarter avg.	130.9		1.004
Jan. avg.	125.5		1.047
Feb. avg.	125.9		1.044
Mar. avg.	126.6		1.039
Apr. avg.	127.3		1.033
May avg.	128.1		1.026
Jun. avg.	128.3		1.025
Jul. avg.	128.6		1.022
Aug. avg.	128.8		1.021
Sep. avg.	129.5		1.015
Oct. avg.	130.2		1.010
Nov. avg.	130.9		1.005
Dec. avg.	131.2		1.002
End	131.5		1.000

APPENDIX A -2

INDUSTRY SELLING PRICE INDEXES BY INDUSTRY AND SELECTED COMMODITIES

IRON AND STEEL MILLS - 1961 = 100

<u>YEAR</u>	<u>INDEX</u>	CONVERSION FACTOR IN TERMS OF	
		<u>1968</u>	<u>1969</u>
1965 - Avg.	106.3	1.019	1.052
1966 - Avg.	101.7	1.017	1.096
1967 - Avg.	103.4	1.000	1.078
1968 - Avg.	103.0	1.004	1.083
1968 - Sep. avg.	103.0	1.004	1.083
Oct. avg.	103.1	1.003	1.082
Nov. avg.	103.2	1.002	1.081
Dec. avg.	103.2	1.002	1.081
1968 - End	103.4	1.000	1.078
1969 - Avg.	106.7		1.044
Jan. avg.	103.6		1.076
Feb. avg.	103.7		1.075
Mar. avg.	105.4		1.058
Apr. avg.	105.8		1.054
May. avg.	106.4		1.048
Jun. avg.	106.5		1.047
Jul. avg.	106.7		1.045
Aug. avg.	107.0		1.042
Sep. avg.	107.1		1.041
Oct. avg.	107.5		1.038
Nov. avg.	110.0		1.014
Dec. avg.	111.2		1.003
1969 - End	111.55		1.000

APPENDIX A-3

PRICE INDEX NUMBERS OF NON-RESIDENTIAL BUILDING MATERIALS GROSS NATIONAL PRODUCT IMPLICIT PRICE DEFLATOR BUSINESS - MACHINERY AND EQUIPMENT

DATE	INDEX	CONVERSION FACTORS IN TERMS OF		DATE	INDEX	CONVERSION FACTORS IN TERMS OF	
		1968	1969			1968	1969
1965 Avg.	112.0	1.087	1.141	1965 Avg.	112.1	1.021	1.049
1966 Avg.	115.4	1.055	1.107	1966 Avg.	114.9	.997	1.023
1967 Avg.	117.8	1.034	1.085	1967 Avg.	113.3	1.011	1.038
1968 Avg.	120.6	1.009	1.060	1968 Avg.	113.6	1.008	1.035
1968 End	121.8	1.000	1.049	1968 End	114.5	1.000	1.027
1969 Avg.	126.1		1.013	1969 Avg.	116.5		1.009
1969 End	127.8		1.000	1969 End	117.6		1.000

APPENDIX A-4

INDUSTRY SELLING PRICE INDEXES BY INDUSTRY AND SELECTED COMMODITIES

OFFICE FURNITURE INDUSTRY			TRUCKS G.V.W., 6000 LBS. OR LESS		
<u>DATE</u>	<u>INDEX</u>	CONVERSION FACTOR	<u>DATE</u>	<u>INDEX</u>	CONVERSION FACTOR
		IN TERMS OF 1968			IN TERMS OF 1968
1965 Avg.	108.5	1.073	1965 Avg.	100.8	1.045
1966 Avg.	113.6	1.025	1966 Avg.	101.8	1.034
1967 Avg.	116.1	1.003	1967 Avg.	101.6	1.036
1968 Avg.	116.4	1.000	1968 Avg.	104.2	1.011
1968 End	116.4	1.000	1968 End	105.3	1.000
1969 Avg.	119.3	1.037	1969 Avg.	106.2	1.015
1969 End	123.8	1.000	1969 End	107.8	1.000

APPENDIX B

ANALYSIS OF FIXED ASSETS, DEPRECIATION AND ACCUMULATED DEPRECIATION

GENERAL PRICE LEVEL ADJUSTMENT - 1969

DATE OF ACQUISITION*	ACQUISITION COST	CONVERSION FACTOR	ADJUSTED COST	1969 DEPRECIATION		ACCUMULATED DEPRECIATION	
				BOOK FIGURE	ADJUSTED FIGURE	BOOK FIGURE	ADJUSTED FIGURE
1965	250,150	1.201	300,430	9,735	11,691	9,735	11,691
1966	230,870	1.140	265,047	11,039	12,667	30,509	36,049
1967	38,124	1.111	42,355	2,463	2,736	53,746	63,143
1968	211,157	1.073	226,571	12,751	13,681	89,736	103,868
1969	<u>120,525</u>	1.024	<u>123,417</u>	<u>8,942</u>	<u>9,141</u>	134,667	153,784
	850,826		957,820	44,931	49,916		

*Assets Assumed To Have Been Purchased At the Average of the Year Dollar

APPENDIX C

ANALYSIS OF PURCHASING POWER GAINS AND LOSSES

SHORT TERM MONETARY ITEMS

DATE	(a) NET MONETARY* POSITION	(b) ADDITIONS (DELETIONS) TO NET MONETARY POSITION BY QUARTER	(c) CONVERSION** FACTOR	(d) ADJUSTED FIGURE	(e) PURCHASING POWER GAINS (LOSSES) (d) - (b)
1968 - End	485,785		1.048	509,102	23,317
1969 - 1st. quarter end	777,305	291,520	1.044	304,346	12,826
- 2nd. quarter end	1,157,605	380,300	1.027	390,568	10,268
- 3rd. quarter end	1,032,120	(125,485)	1.021	(128,120)	(2,635)
- 4th. quarter end	739,742	(292,378)	1.004	(293,547)	1,169
					<u>42,607</u>

* All figures shown are net monetary liabilities

** Increases (decreases) in net monetary position are assumed to take place at the average of the quarter's prices

APPENDIX C

ANALYSIS OF PURCHASING POWER GAINS AND LOSSES

LONG TERM LIABILITIES					
(a)	(b)	(c)	(d)	(e)	
	NET MONETARY** POSITION	ADDITIONS (DELETIONS) TO NET MONETARY POSITION BY QUARTER	CONVERSION** FACTOR	ADJUSTED FIGURE	PURCHASING POWER GAINS (LOSSES) (d) - (b)
1968 - End	840,401		1.048	880,740	40,339
1969 - 1st. quarter end	831,151	(9,250)	1.044	(9,657)	(407)
- 2nd. quarter end	804,851	(26,250)	1.027	(26,958)	(708)
- 3rd. quarter end	787,601	(17,250)	1.021	(17,612)	(362)
- 4th. quarter end	918,570	130,969	1.004	130,918***	(51)
					<u>38,811</u>

* All figures shown are net monetary liabilities.

** Increases (decreases) in net monetary position are assessed to take place at average of quarter's prices except as mentioned below.

*** The majority of this increase came during the latter part of December and thus was already stated at the year end dollar. During the previous two months of the quarter a decline in the net monetary liabilities did occur which were subject to a purchasing power drop of 51 dollars.

APPENDIX D

ANALYSIS OF FIXED ASSETS, DEPRECIATION AND ACCUMULATED DEPRECIATION

SPECIFIC PRICE LEVEL ADJUSTMENTS - 1969

N.B. Example showing 'Machinery and Equipment' Breakdown - Total Figures only included for all other assets

ASSET CLASS	DATE OF ACQUISITION	ACQUISITION COST	CONVERSION FACTOR	ADJUSTED COST	1969 DEPRECIATION		ACCUMULATED DEPRECIATION	
					Book	Adjusted	Book	Adjusted
Machinery & Equipment	6/1/1965	61,888	1.049	64,920	4866	5104	4866	5104
	6/1/1966	170,989	1.023	174,921	9475	9629	19207	19837
Includes:								
1. Machinery & Equipment	6/1/1967	19,978	1.038	20,737	1827	1896	35375	36466
	6/1/1968	57,990	1.035	59,903	3077	3178	54620	56273
2. Contractors Moveable Equipment	6/1/1969	98,969	1.009	99,801	6754	6814	80619	83141
		409,816		420,299	25,999	26,621		
OFFICE FURNITURE & FIXTURES		33,196		35,913	3329	3570	9692	10570
TRUCKS		3,640		3,866	728	766	2986	3150
LAND								
Appraised Value		104,060		428,000	---	---	---	---

APPENDIX D

ANALYSIS OF FIXED ASSETS, DEPRECIATION AND ACCUMULATED DEPRECIATION
SPECIFIC PRICE LEVEL ADJUSTMENTS - 1969

ASSET CLASS	DATE OF ACQUISITION	ACQUISITION COST	CONVERSION FACTOR	ADJUSTED COST	1969 DEPRECIATION Book	ACCUMULATED DEPRECIATION Adjusted Book	DEPRECIATION Adjusted
NON-RESIDENTIAL BUILDINGS		269,519		295,511	11,177	11,884	33,072
Includes:							36,180
1. Shop Building							
2. Joist Shop Building							
3. Erectors Building							
4. Office Building							
5. Paint Shop							
6. Compressor & Gas Processing Building							
7. Lunch Room							
IRON & STEEL ITEMS		30,595		32,495	3,698	3,865	8,298
Includes:							8,832
1. Fence							
2. Railway Spur							
3. Crane Runways							
4. Leasehold Improvements							
TOTALS		850,826		1,216,084	44,931	46,706	134,667
							141,873
							88

APPENDIX E

ANALYSIS OF HOLDING GAINS AND LOSSES ON FIXED ASSETS

GROUP ASSET

ACCUMULATED

DEPRECIATION

CLASS OF ASSET	Total Current Cost at end of 68	Total Current Cost at end of 68 expressed in S.P.L. \$'s	Total Current Cost at end of 68 expressed in C.P.L. \$'s	Diff. (b)-(c)	Additions during 1969	Additions expressed in year End S.P.L. \$'s	Additions expressed in year End C.P.L. \$'s	Diff. (f)-(g)	Acc. Dep'n at Current Cost at end of 68	Acc. Dep'n at Current Cost expressed in S.P.L. \$'s	Acc. Dep'n at Current Cost expressed in C.P.L. \$'s	Diff. (j)-(k)	Additions during 1969	Additions expressed in year End S.P.L. \$'s	Additions expressed in year End C.P.L. \$'s	Diff. (m)-(n)	Total Gain (loss) on Holding Assets (dth)-140)
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
MACHINERY																	
EQUIPMENT	312,016	320,444	326,992	(6,548)	98,969	99,859	101,344	(2,485)	54,793	56,273	57,423	(1,150)	6,754	6,814	6,916	(102)	(7,781)
BUILDINGS	271,148	284,435	284,164	271	10,965	11,075	11,228	(153)	23,276	24,311	24,228	33	251	254	257	(3)	88
OFFICE FURNITURE	27,702	29,474	29,031	443	6,113	6,339	6,259	80	6,608	7,000	6,894	106	866	898	886	12	405
TRUCKS	3,775	3,866	3,956	(90)	---	---	---	---	2,339	2,395	2,451	(56)	---	---	---	---	(35)
IRON & STEEL ITEMS	25,328	27,286	26,526	760	558	5,824	5,713	111	4,693	4,994	4,855	139	662	691	677	14	718
LAND	267,670	430,247	279,816	150,949	(1,106)	(2,765)	(1,159)	(1,606)	---	---	---	---	---	---	---	---	149,343
TOTALS	906,969	1,095,752	1,095,752	120,332	---	---	---	---	---	---	---	---	---	---	---	---	142,735
	Total on 1968 E/S			1,216,084	Total on 1969 E/S												

APPENDIX F

ANALYSIS OF HOLDING GAINS AND LOSSES ON INVENTORY

<u>MONTH</u>		<u>S.P.L.</u>	<u>G.P.L.</u>
Dec. 68	W.I.P.-680,845 x 103.4/103.2 = 645,008		
	R.Mat.-643,721 x 103.4/103.2 = 682,207		
	P.B. -421,527 x 103.4/103.1 = <u>422,791</u>		
	904,424 x (103.4-103.2)x111.55/103.4 = 1949		2844
	x (125.5-125.2)x131.5/125.5 =		
Jan. 69	-628,902 x 103.6/103.2 = 631,339		
	642,172 x 103.6/103.6 = 642,172		
	352,681 x 103.6/103.2 = <u>354,047</u>		
	919,454 x (103.7-103.6)x111.55/103.6 = 989		3852
	x (125.9-125.5)x131.5/125.5 =		
Feb. 69	-654,949 x 103.7/103.6 = 655,810		
	722,043 x 103.7/103.7 = 722,043		
	350,579 x 103.7/103.2 = <u>352,277</u>		
	1,025,576 x (105.4-103.7)x111.55/103.7 = 18,753		7393
	x (126.6-125.9)x131.5/125.9 =		

APPENDIX F (Continued)

S.P.L. G.P.L.

MONTH

Mar. 69

-644,878 x 105.4/103.7 = 655,449
 920,951 x 105.4/105.4 = 920,951
 344,583 x 105.4/103.6 = 350,569

1,225,831 x (105.8-105.4)x111.55/105.4 = 5188
 x (127.3-126.6)x131.5/126.6 = 8911

Apr. 69

-956,169 x 105.8/105.4 = 959,797
 903,222 x 105.8/105.8 = 903,222
 630,026 x 105.8/103.7 = 642,783

1,220,236 x (106.4-105.8)x111.55/105.8 = 7718
 x (128.1-127.3)x131.5/127.3 = 8677

May 69

-1,031,772 x 106.4/105.8 = 1,037,622
 1,075,396 x 106.4/106.4 = 1,075,396
 596,208 x 106.4/105.4 = 601,864

1,511,154 x (106.5-106.1)x111.55/106.4 = 1584
 x (128.3-128.1)x131.5/128.3 = 3101

Jun 69

-1,140,607 x 106.5/106.4 = 1,141,678
 1,261,673 x 106.5/106.5 = 1,261,673
 647,623 x 106.5/105.8 = 651,907

1,751,444 x (106.7-106.5)x111.55/106.5 = 3667
 x (128.6-128.3)x131.5/128.3 = 5385

APPENDIX F (Continued)

<u>MONTH</u>		<u>S.P.L. G.P.L.</u>
Jul 69	-1,745,839 x 106.7/106.5 = 1,749,117 1,083,368 x 106.7/106.7 = 1,083,368 1,252,291 x 106.7/106.4 = <u>1,255,821</u> 1,576,664 x (107.0-106.7)x111.55/106.7 = 4945 x (128.8-128.6)x131.5/128.6 = 3223	
Aug 69	-2,185,122 x 107.0/106.7 = 2,191,265 1,000,837 x 107.0/107.0 = 1,000,837 1,252,291 x 107.0/106.5 = <u>1,258,169</u> 1,933,933 x (107.1-107.0)x111.55/107.1 = 2015 x (129.5-128.8)x131.5/128.8 = 13,820	
Sep 69	-2,065,722 x 107.1/107.0 = 2,067,652 1,143,194 x 107.1/107.1 = 1,143,194 1,476,931 x 107.1/106.7 = <u>1,482,467</u> 1,728,379 x (107.5-107.1)x111.55/107.1 = 7200 x (130.2-129.5)x131.5/129.5 = 12,284	92
Oct 69	-2,087,033 x 107.5/107.1 = 2,094,827 1,319,850 x 107.5/107.5 = 1,319,850 1,639,927 x 107.5/107.0 = <u>1,646,748</u> 1,767,929 x (110.0-107.5)x111.55/107.5 = 45,863 x (130.9-130.2)x131.5/130.2 = 12,498	

APPENDIX F (Continued)

<u>MONTH</u>		<u>S.F.L.</u>	<u>G.P.L.</u>
Nov 69	-2,031,769 x 110.0/107.5 = 2,079,018		
	1,237,613 x 110.0/110.0 = 1,237,613		
	1,661,442 x 110.0/107.1 = <u>1,706,429</u>		
	1,610,202 x (111.2-110.0)x111.55/110.0 =19,593		
	x (131.2-130.9)x131.5/130.9 =		11,322
Dec 69	-2,314,481 x 111.2/110.0 = 2,339,729		
	1,061,254 x 111.2/111.2 = 1,061,254		
	1,839,560 x 111.2/107.5 = <u>1,902,874</u>		
	1,498,109 x (111.55-111.2)x111.55/111.2= 5258		
	x (131.5-131.2) x131.5/131.2 =		4503
TOTALS		124,722	97,813
Gain on Holding Inventory (124,722-97,813)			26,909

CHAPTER V

MANAGERIAL IMPLICATIONS OF PRICE LEVEL ADJUSTMENTS

INTRODUCTION

When inflation radically alters reported returns, management needs to know specifically how their own firm has been affected. If amounts which really represent recoveries of capital are going to the government in the form of income taxes or to stockholders as dividends, management needs an indicator of the magnitude of these flows. Information of this type is necessary to maintain real capital in the short run. The effects of these price changes, however, are even more important in making long range plans for development and expansion. This chapter is written in order to briefly include some of the possible managerial uses which may be made of price level adjustments. Several specific purposes for which adjusted data may be used are mentioned and an attempt is made to tie in the attitudes of the management of The Great West Steel Company to these purposes.

ANALYSING DIVISIONAL RESULTS

The management of large corporations face the continual problem of measuring the relative success of their subsidiaries or branch divisions and of evaluating the achievement of the men who manage them. For this purpose, it is essential that cost, revenues, and investments be placed on a comparable basis for equitable and knowledgeable decision making. In comparing the results of two divisions, for example, one

which operates plants built in the forties and the other which operates plants established in the sixties, management must recognize the fact that the size of the dollars invested in the former plant bear little relationship to the size of those invested in the latter. It is possible that on the basis of management's knowledge of the existing economic conditions, such an analysis is implicit in their actions, however, it would seem that not even an educated guess is as reliable as a systematic analysis which considers the effects of inflation on a return of investment calculation.

Despite the fact that the age differential between the various fixed plant investments of The Great West Steel subsidiaries is not great, the president felt that price level adjusted statements could be of great use (particularly in the future as more plants are established and/or increased capital investment is made in the existing branches) for comparative purposes.

The next question which could be posed is what type of price level analysis should be used? - a general price level adjustment or one in which account is made for the current value of the investment. Although arguments for each side abound (many of which were discussed in Chapter III), the management of this company clearly felt that the use of replacement costs or current values was superior to an adjustment made by the use of a general price index. The reason for this basically was that although taking the purchasing power of the dollar into consideration places everything in uniform dollars, those dollars do not indicate the value of their particular investment. It was felt, however, that tying in the general price level with the specific indexes

was useful in illustrating the opportunity cost of being in the steel business.

It should be pointed out that although specific indexes were used in this study (with the exception of land), the company would have preferred actual replacement costs. The president felt that the use of replacement costs would permit management to assess how well its divisional people were able to purchase their various plant items. Since specific indexes simply multiply cost by a factor, shrewd buying and favorable purchase prices are not likely to show up under such an analysis.

PRICING POLICIES

Prices are not directly determined by costs whether the costs are adjusted or unadjusted to current levels, but broad decisions as to profit goals may have an important bearing on pricing policies. For example, one could ask if the pricing policies of corporations as a whole would have remained the same if the gap between real and nominal earnings were fully understood. It is recognized, of course, that finding ways of increasing real income in a seller's market is relatively easy and conversely is extremely difficult in a buyer's market where highly competitive conditions exist. Under either set of circumstances, however, full information about existing conditions should be useful to management. There will of course be occasions where prices must be set lower than the full economic costs of producing the good, but certainly prices should not be set below real costs without full knowledge of the fact. .Even if current costs or costs in current dollars are not used for financial reporting purposes, they can be of service in analyzing

the costs and pricing decisions of a firm.

The president of The Great West Steel Company was asked to comment on the pricing practices of his firm and whether the knowledge of real costs would be an aid in making pricing decisions. In general, it may be said that although the understanding of the real costs of production either in terms of purchasing power sacrificed or actual current costs incurred was thought useful, this knowledge would have little effect on the company's pricing policy with the possible exception of one area. As previously mentioned, the production of the firm can be broken down into four main areas.

1. Joists
2. Heat Exchangers
3. Resource Industry Sales
4. Conventional Steel Items

Joists - Although there are only two main competitors (which are in the east and use different processes) with regard to this product, the main competition comes from other competitive materials such as lumber and concrete substitutes. The company's control over price thus is only minimal in this situation.

Heat Exchangers - The Great West Steel Company manufactures heat exchangers under license. No other heat exchanger of its type are produced in Canada and hence the company has a high degree of control over the pricing of this particular item. As far as the author is aware, however, the company has not undertaken any segmented reporting and thus the total contribution of this product to net income was obscure. Should this type of reporting exist or come into existence, however, the effect

of price level changes and the pricing policy could be closely studied.

Resource Industry Sales - Although Dominion Bridge is the only real competitor in the type of resource industry sales with which the company is involved, the president stressed that price was not a major factor. He emphasized that in this high risk area engineering, delivery and quality factors were the most important.

Conventional Steel Items - Approximately 20% of the company's sales dollar comes as a result of conventional steel sales. In this area, the firm has no control over price and tends to follow the lead of the major mills. In this regard, the president felt that in light of his conversations with several of the eastern steel executives, price level changes probably were taken into consideration, especially by Stelco, when forming pricing policies.

"Because they are the leaders and because in many of their products they don't have offshore competition or offshore factors such as imports, it seems to me that they should be doing it (taking price level changes into consideration) and I am sure they are doing it, but to what degree I don't know."¹

In conclusion, although adjusted or historical costs are not the prime determinant of price, the knowledge of the real costs of doing business can be of fundamental value in setting profit goals. Limiting earnings to levels too low to provide for both an adequate return to investors and the maintenance of real capital is no more in the national interest than it is in the interest of investors and employees. While management would seldom do this intentionally, it is possible that they may have done so unintentionally simply because the facts as to real

¹K. Heffel, private interview.

earnings and real capital employed were not available to them.

DIVIDEND POLICIES

The assumption can be advanced that those who make dividend decisions have so much information about the business environment on hand that they can allow for the effects of inflation and still arrive at sound financial policies. Jones² in his studies, however, has effectively shown that this is not necessarily the case. It is doubtful if boards of directors would declare dividends if they knew the effect would be to impair real invested capital, therefore, a major reason for preparing price level adjusted statements either in current costs or costs in current dollars is to develop information about capital and income in real terms, to avoid doing through miscalculation what would not normally be done intentionally.

Although The Great West Steel Company has not as yet paid out any of its earnings in the form of dividends, the president felt that a systematic analysis into real income and capital would be a valuable aid in deriving a dividend policy for the firm.

CAPITAL STRUCTURE

One factor which is seldom considered in a firm's capital structure is its speculation on the currency. In this regard, a firm may be long, short or hedged. If a company is in the position of holding large amounts of cash, receivables and other monetary assets

²R. C. Jones, "Effect of Inflation on Capital and Profits: The Record of Nine Steel Companies," The Journal of Accountancy, January 1949.

in excess of its liabilities then the firm is vulnerable to inflation and may suffer, depending on the degree of inflation, large losses when the value of the dollar falls. If the position in the currency is short, the company which has an excess of monetary liabilities relative to its monetary assets may capitalize on its position by incurring purchasing power gains. On the other hand, it may leave itself vulnerable to deflation. Thus, there are risks involved in either position and any departure from a neutral or hedged position should be carefully studied. It would seem, however, that the question of an optimum balance between monetary assets and liabilities is seldom considered, an oversight which is less likely to occur if those responsible for financial policies received information concerning purchasing power gains and losses.

The management of The Great West Steel Company has clearly been speculating in the currency position since the start of the firm's operations. The president felt that the inflationary trend would continue for a number of years and has consistently followed a policy of maintaining net monetary liabilities in the company's financial structure. He found the figures in the study most interesting since prior to that time, he knew only the direction but not the magnitude of the purchasing power gains. Since pursuing such a policy is not without cost, it would be interesting to determine by what degree these purchasing power gains were offset by increasing interest charges.

CONTRACT NEGOTIATIONS

During periods of inflation, management is faced with the difficult task of explaining to employees why profits must rise at rates higher than wages. Therefore, when important differences develop between real and reported earnings as they often will during inflationary trends, management not only has a responsibility but also a strong incentive for correcting erroneous assumptions which result from interpretations of financial data based on historical cost. It would seem to follow that price level adjusted statements either in terms of current dollars or current cost would be an invaluable aid both to management and union officials in reaching conclusions as to the fairness of wage rates. For example, if book profits per ton of steel were .50 dollars more in 1970 than in 1969 and adjustments for changes in price altered or even reversed this figure, then this fact should be of importance in contract negotiations.

The president of Great West Steel, in commenting on this subject stressed that while national union representatives might appreciate the problem, bargaining is generally carried out with the local branches. He felt that price level adjusted statements would simply be too confusing for the representatives at the local level.

PRICE LEVEL ADJUSTMENTS AND FINANCIAL INSTITUTIONS

The president of the firm was asked if he thought price level adjusted statements would be accepted in financial circles. The answer was a very blunt negative. His feeling was that banks would not give much notice to price level adjustments and financial institutions even

less.

In this regard, it is interesting to reflect on the N.A.A. study conducted by Morton Backer, which made a study of the nature of decisions and data requirements of security analysts. Among his findings was the following:

"We found these analysts virtually unanimously opposed to adjusting income by application of a general price index. Although a number of reasons were offered, the principle objections relate to a presumed loss of objectivity because the application of a general price deflator to specific assets would only coincidentally reflect their real values, assets may not be replaced in kind, technological improvements are not recognized, etc. Moreover, and perhaps most important, analysts generally do not place great stress on fixed assets shown on the balance sheet. They tend to eliminate depreciation (and certain other "non-operating" charges) in comparing companies."³

On the other hand, he found substantial interest among security analysts and bank officials in current value of inventory items but stressed that they were strongly opposed to the abandonment of the realization principle.

"Without a single exception the analysts interviewed were vigorously opposed to the recognition of unrealized inventory gains."⁴

The president was then asked if despite his above comments (which appear to be well reinforced by Backer's study) he might be able to use price level adjustments to advantage in the event the firm went public. He felt that although the following was unlikely this

³Morton Backer, "Financial Reporting and Security Investment Decisions," Financial Executive, Vol. 34, December 1966, p. 56.

⁴Ibid., p. 56.

possibility existed:

"If our company had two or three years of price level adjusted statements showing real profits to be x% higher per year than the historical figures, we may be able to get, in discussions with an underwriter, one or two more multiples added to our price earnings ratio than the historical industry, i.e. if our industry as the steel industry has a ten times price earnings ratio and I am negotiating with an underwriter to take the firm public and I can show him that our adjusted earnings are x% higher over the historical years, then I could take ten times price level adjusted statements as the total amount of the issue. However, we can't do that in prospectuses because we have to follow accounting convention; therefore, the only way we can end up with that same figure is to change the multiple - now twelve or thirteen times price earnings ratio."⁵

Concluding, it appears that the financial markets have little interest in price level adjusted statements.

CONCLUSION

This chapter has focused on some of the possible managerial implications of price level changes. In brief, it was argued that financial data adjusted for price level changes provide a more intelligent, better informed, basis for decision making.

⁵K. Heffel, private interview.

CHAPTER VI

CONCLUSIONS

The purpose of this thesis was, (1) to review the controversy surrounding the two basic methods of accounting for price level changes, (2) to measure the effect of inflation on a small company in the Edmonton area by comparing conventional statements expressed in historical dollars with supplementary statements expressed in uniform dollars as measured by (a) a general price index and (b) specific indices, (3) to investigate the attitudes of management toward preparing price level adjusted statements and (4) to examine some of the managerial implications of price level changes on The Great West Steel Company as well as business organizations in general.

In considering alternative valuation procedures some have suggested the use of general price indices to adjust for variations in the value of the dollar, while others favour more specific methods - specific price indices, replacement costs or market values - to adjust for price variations in individual goods and services. The combination in the accounts of the two different price movements has also been suggested. Much of this discussion was centered around the various concepts of capital maintenance and net asset valuations, and their effects on reported income.

In undertaking the case study the firm was asked to outline its information requirements with regard to price level changes. To this

end, the president wished to obtain a report which would be sanctioned by the accounting institutes, would contain information as to the effectiveness of his high debt policy and would indicate the approximate current values of his assets. In addition he was interested in obtaining a broad measure of the opportunity cost of being in the steel business.

To accomplish these needs two different adjustment procedures were employed. The first was a general price level adjustment, a technique which involves a restatement of every item in the statements to a current dollar basis. This was accomplished by using the Gross National Product Implicit Price Deflator index. While an adjustment of this nature satisfies the conditions of a report which is most likely to be recognized and approved by the accounting institutes and which considers the effect of inflation on holding net monetary assets or liabilities, it must be concluded that on the whole it is difficult to ascribe any sensible meaning to the adjusted figures which appear on the supplementary statements. When a firm commences business there may be some justification for regarding its funds as representing generalized purchasing power. At that time its assets are consistently valued in terms of current prices and until the firm buys operating assets and begins its business activities may be regarded as having an infinite range of alternative uses. But once the funds are invested in specific assets and the firm begins to engage in specialized kinds of operating activity; these conditions no longer hold. The passage of time means that some items cease to reflect current values. Moreover, the fact that most operating assets are, to a large extent, specific

to the firm, means that they cannot be even remotely regarded as represented general purchasing power. Thus a general approach, by itself, to the problem of accounting for price level changes has little to commend it and may be just as misleading as historical cost data.

The deficiencies of a general price level adjusted statement were overcome by the preparation of the second adjusted statement which reflects both specific and general price changes. Current market values (replacement costs) were approximated by specific indices and appraisal values. In addition to purchasing power gains and losses on monetary items, the effects of holding non-monetary assets during a period of inflation were observed. This measurement showed a large holding gain accruing to the firm and also represented a means of evaluating the opportunity cost of maintaining these assets relative to the general economy.

The results of these two adjustment procedures and their comparison to the reported statements are contained in Chapter IV.

A number of possible advantages of including price adjusted data were examined in relation to business in general as well as to the firm under study. In this regard the management of the firm was found to be receptive to the incorporation of adjusted data mainly in the areas of dividend policy, capital structure and performance evaluations of subsidiary plants. They were less interested in using adjusted data in the areas of contract and financial negotiations, pricing policy and day to day operations.

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